Army Reserve Geographic Information Support System (ARGISS)

TRAINING MANUAL

June 2006

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Section I

Course Introduction and Outline

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ARGISS Background

The Army Reserve Geographic Information Support System (ARGISS) is a very important component under the Engineer Base Operating Support System (ENBOSS) 'umbrella'. ARGISS originated out of the Army Reserve need to consolidate facility-related data from various sources. The Army Reserve wanted to spatially display the data and report on the data. ARGISS in a geographic information system (GIS) that provides authorized users with tools that are utilized in engineering applications. ARGISS manages and allows querying, mapping and reporting on selected data. ARGISS is comprised of the following modules:

- *Facility Planning System* (*FPS*) is an engineering application that utilizes ARGISS components
- *Data Bridge* provides data management tools
- *PlanView* provides site and floor plan management
- *MapInfo Professional* provides desktop GIS functionality

ARGISS 1.0 was released in June of 1995. ARGISS 1.0 provided a toolset consisting of the *Data Bridge*, *MapInfo* and a subset of *InfoMaker*. The *Data Bridge* consolidated Army Reserve facility-related data originating from various sources, and allowed ARGISS users to perform simple queries on that data. *MapInfo* provided a platform to make the data mappable. *InfoMaker* provided a number of predetermined tabular report formats for the consolidated Army Reserve data. The *Facility Planning System (FPS*) was also fielded with ARGISS 1.0. As the first application to use the ARGISS toolset, *FPS* provided a user-friendly way to report on facility-related data, both in spatial and tabular form.

ARGISS 2.0 was released in September of 1995. ARGISS 2.0 used the full *InfoMaker* product, providing the ability to create and execute tabular report formats for *Data Bridge* data. The *Data Bridge* featured enhancements that added to its querying flexibility. The ARGISS 2.0 version of *FPS* featured mapping functionality enhancements.

ARGISS 3.0 incorporated two new applications into its toolset. *PlanView* is an application to view site and floor plans, and the Environmental Planning System (*EPS*), an application that helped users report on environmental-related data. The *Data Bridge* enhancements resulted in more querying flexibility and consolidating environmental-specific data from different sources. In addition, the ARGISS 3.0 version of *FPS* featured mapping enhancements.

ARGISS 3.1 was designed to work with *MapInfo Professional*, version 4.0.2. ARGISS 3.1 was released in October 1996.

ARGISS 5.0 was released 1 October 1997. ARGISS 5.0 required three phases of development. The first phase required converting the existing PowerBuilder code from PowerBuilder version 4 to version 5. The second phase consisted of converting the existing ARGISS Database Management System (DBMS), FoxPro, to the Engineering Management Automation, Army Reserve (EMAAR) Relational Database Management System (RDBMS), and Sybase SQL Anywhere. The third phase included incorporating new functional elements into the ARGISS

system, including the ability to access multiple data formats, new *EPS* reports, *Create Application Data* process enhancements, and the ability to run *Data Bridge* queries created by other users.

ARGISS 5.1 was released on 12 December 1998. This release featured significant revision to the Data Bridge. There is now a wizard that guides the user through the creation of queries. Although the user will still have all of the old functionality available to them, the wizard will make things easier to the novice user. The wizard will also build ODBC relationships automatically. Additional options added to EPS and FPS, include the ability to map facilities with a functional code of *Other*.

ARGISS 6.0 was released in April 1999. This release is a 32-bit version that runs in Windows 95, Windows NT Workstation, and on an NT server. The software is fully Y2K compliant. The Data Bridge also provides a database backup utility. In the event of a server crash, the back up database can be recovered so that the information that was stored in the system tables is preserved.

ARGISS 7.0 was released in June 2000. This release incorporates a re-engineering of the EMAAR system and a transitioning into an integrated client/server environment with a stable relational database management system (RDBMS). This has resulted in the Engineering and Base Operations Support System (ENBOSS) – a system that converts the EMAAR database from Microsoft FoxPro to Sybase Adaptive Server Anywhere (ASA).

- ARGISS remains extremely Windows-intensive software so users must understand Windows graphical user interface when taking this course.

ARGISS 8.0 was released in June 2001 as part of the ENBOSS 2 suite of software. This release enabled ARGISS to function more easily in a stand-alone environment.

ARGISS 8.1 was released in April 2002 and provided users with immediate verification of 'LAN' versus 'Local' data sources when using Data Bridge. (The data source is indicated in the bottom right corner of most Data Bridge screens). ARGISS 8.1 also modified the ARGISS FYP Report, Cost Summary Report and Stationing Reports – Current and Projected.

ARGISS for MetaFrame was released in conjunction with ENBOSS 4.0 Suite of Applications in March 2004. It is all web-based and available on any computer running Windows with the properly configured Citrix Client and DoD Certificates. ARGISS for MetaFrame has retained its functionality, while allowing the applications to be updated on the MetaFrame Servers, rather than on each user's desktop computer.

- There are many references to the T:\drive in this manual. This refers to the Remote MetaFrame servers used for ACSIM-AR, IMA-AR and all RRC headquarters. This T:\drive is the location where the ARGISS basemaps and datasets are stored. The Remote MetaFrame T:\drive is not to be confused with your local T:\drive on your LAN. The Remote T:\drive is only available when you are signed into ENBOSS 4.0.

Course Layout and Objectives

The major objectives of this course and guide are to give the student a basic understanding of the *ARGISS Facility Planning System (FPS)* and *Data Bridge* modules. At the completion of the course, the student will have a thorough knowledge of the ARGISS mapping capability as well as the query building process in the *Data Bridge* by using *Table Maintenance* and through the *Data Bridge Wizard.*

At the end of each section you will find practical exercises. The practical exercises build upon themselves and it's very important for the student to follow these exercises. The exercises are based on a hypothetical problem that illustrates how *Data Bridge* can be used to assist the Army Reserve Engineer with his or her daily job functions. The following paragraphs explain the "scenario" of the practical exercises.

Scenario I

Congressman Snort is visiting the 89th RRC with some colleagues from Washington D.C. He is coming to your RRC to better understand the Army Reserve needs for his state, and more importantly, his hometown of Omaha, Nebraska. As the Facility Manager / Environmental Engineer / Budget Analyst for the 89th RRC, it is your responsibility to develop a briefing for the Congressman and his colleagues. You will include the following in the final presentation:

- Facility Information
- Unit Information
- Financial / Cost Information (Work Orders)

The Master Planner, SGT Bilko, has been asked to prepare a briefing for Congressman Snort. The briefing should include reports derived using *Data Bridge.* The reports include:

- A facility report for the state of Nebraska
- A report including only the facilities over 50,000 square feet and the units that drill there

Scenario II

Congressman Snort went back to Washington D.C. with his colleagues very pleased with your presentation. However, within a few weeks he started receiving complaints from the soldiers training in NE003 explaining that they do not have enough space to train. To correct the problem, ACSIM is considering an MCAR project to expand the existing space in NE003. The MCAR process is being expedited due to the fact that NE003 is at 250% utilization and reported as a RED facility in the Installation Status Report (ISR).

This morning you found out that Congressman Snort and his colleagues want to visit NE003 and a strip map with directions for Congressman Snort needs to be created so he can find NE003 without getting lost. You also must start the MCAR process. You as the Master Planner / Facility Manager / Environmental Engineer / Budget Analyst (the 89th is a little understaffed at this time) for the 89th RRC it is your responsibility to develop another briefing for the Congressman and his colleagues. You will include the following in the final presentation:

- Street Information and Directions

- Facility Information
- Unit Information
- Financial / Cost Information

The Master Planner, SGT Bilko, has been asked to prepare a second briefing for Congressman Snort. The briefing should include a master report and a Microsoft PowerPoint presentation with appropriate maps and graphics with the 89th RRC Engineer symbol. The following items, at a minimum, will be produced:

- Strip map containing directions on how to get to NE003
- Map of the 89th RRC without any other states with all the MCAR projects labeled with Name and City
- Report with all of the facilities in Nebraska and the ARNG units that train in those facilities. You already maintain this Excel spreadsheet with all of the ARNG units and their strengths. Report application containing the above report can be run by anyone in the RRC.

Section II

Data Management in the Data Bridge

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Objectives

This section provides a detailed description of Data Bridge functionality. The Data Bridge allows the user to consolidate database information from Sybase SQL Anywhere, FoxPro, MS Excel and MS Access databases, create queries on that data and retrieve the data from the specified database or databases. In addition, Data Bridge creates and geocodes data for the planning system (FPS) that utilize ARGISS.

Data Bridge contains three functional areas:

- Working with Queries
- Performing Administrative Functions
- Accessing Help and Other Windows Functionality

Data Bridge Overview

The *Data Bridge* allows the user to consolidate data from multiple applications, create queries on that data, and retrieve the data from the specified tables. The *Data Bridge's* three main functional areas include working with queries, performing administrative functions, and accessing help and other Windows functionality.

Queries defined within the *Data Bridge* can be customized. Data can be retrieved by a query from four database formats including Sybase SQL Anywhere, FoxPro, MS Excel, and MS Access. While defining a query, the user can select columns from tables, set primary key columns, join columns from different table formats, and modify the SQL statements. When a query that references multiple or different database formats is run, the *Data Bridge* pulls all the designated information from the source tables into the Sybase SQL Anywhere database and runs the query. The query definition can be saved and the resulting data can be saved into any of the four database formats. Queries have access levels associated with them. A query definition can be defined as *Private*, *Read-Only*, or *Public*. A *Private* query can be used and edited only by the user who created the query. A *Read-Only* query can be used by any user but can be edited only by the user that created the query. A *Public* query can be used and edited by any user with access to the *ARGISS Data Bridge*.

Administrative functions include maintenance functions such as changing passwords and performing table maintenance, as well as the *Create Application Data* process. The *Create Application Data* process compiles application data for *FPS* from source tables and geocodes the data. Geocoding assigns geographic coordinates to the data. *FPS* cannot function without application data. The System Administrator is responsible for running the *Create Application Data* Process on a regular basis (usually twice a month). *FPS* users are responsible for copying the updated application data to their local drive (i.e. the Metaframe "local" H:\ drive). This is done this way to protect the integrity of the ENBOSS database; ARGISS is a read-only tool!

ARGISS pulls data from existing databases maintained by the United States Army Reserve. These databases include:

- Engineer Base Operating Support System (ENBOSS)
- Individual Training and Readiness System (ITRS)
- Force Program File (DCSFOR)

ARGISS only uses existing data. It does not create new data, nor does it update the ENBOSS database.

Relational Database Management System (RDBMS) Overview

ARGISS 7.0 completed the migration from the FoxPro DBMS to Sybase SQL Anywhere, a RDBMS. A RDBMS is a software application that organizes data in relationships. Relationships are created by including common columns in the tables that will be related. For example, ARGISS' entity table and bridge table both have a database ID column (DB_ID) to create a relationship between the two tables.

A RDBMS stores data in tables. The tables are stored in a database. The database is seen as a single file in a directory, but the tables cannot be seen or accessed without special software called a database engine. A valid user name and password are also required to access the tables in the database. These security measures make it difficult for someone to edit data or delete a table. DBMS tables, on the other hand, are less secure than RDBMS tables. In contrast, each table in a DBMS (such as FoxPro) can be seen as an individual file in a directory. This means the tables (DBMS) can be moved, renamed, or deleted (intentionally or by mistake) using the Windows Explorer. Data in the tables (DBMS) can be edited using Microsoft Excel or other easily accessible applications that can read DBF file types. Therefore, RDBMSs are more secure than DBMSs.

Data Bridge Terms

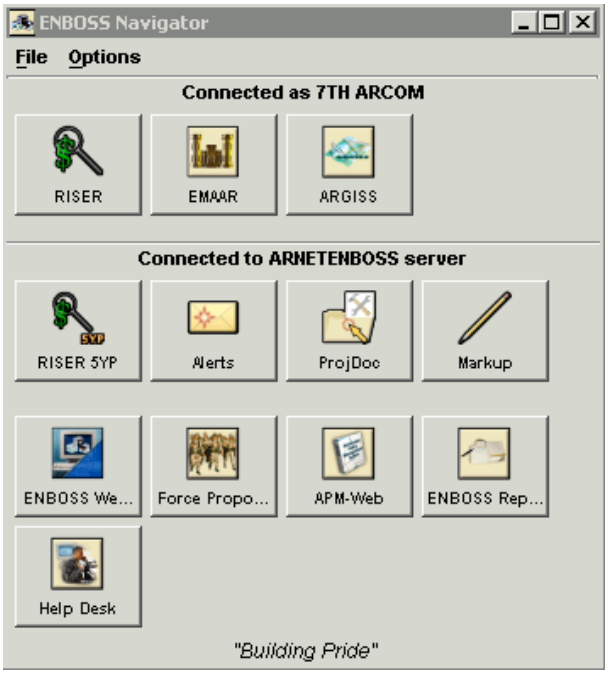
The following is a list of common terms the *Data Bridge* uses, and may be discussed during this course:

- *Join* - Allows the user to combine two or more tables in one query by utilizing the WHERE clause
- *Key Field* - A field that is registered in the *Data Bridge Table.*
- *Primary Key* - The field or group of fields that uniquely defines a record in a table, i.e. Fac_id
- *Profiles* - Profiles must be set up to tell the *Data Bridge* information how to connect to the tables you want to query. A profile tells the *Data Bridge* the directory where the table is located and the database type.
- *Query* - A method used to retrieve or select data from a profile.
- *Relationship* - A method of relating or joining fields in different databases to one another, i.e. Fac_id from EMAAR and Fac_id from the FORC_FIL.
- *Structured Query Language (SQL)* - A nonprocedural programming language used to develop queries and manage databases.

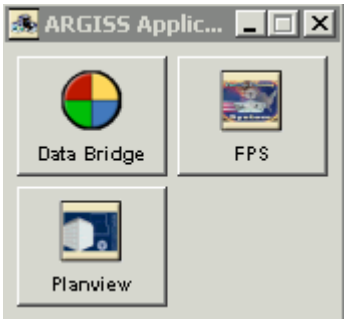
Launching the Data Bridge

To launch ARGISS' Data Bridge module from the ENBOSS Navigator:

Select ARGISS,



Then choose the DataBridge icon.



Populating the Data Bridge System Tables

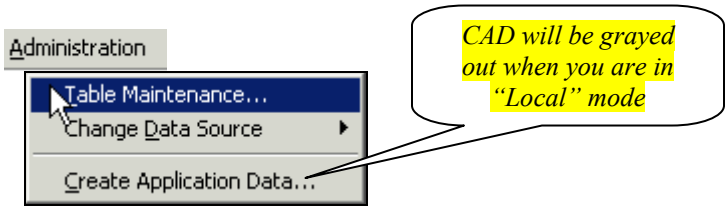
The *Data Bridge* system tables consist of the *Primary Key*, *Data Bridge*, *Relationship* and *Security* tables if you are pointing to the LAN system tables. If the user has changed the data source to Local, the Security Table will not be in the list of Reference Tables. When entering data into the system tables start with the Primary Key Table, then the Data Bridge Table and finally the Relationship Table if needed.

Performing Table Maintenance

ENSURE YOU ARE ON THE LOCAL DATA SOURCE BEFORE ADDING OR DELETING KEYS, FIELDS, AND TABLES.

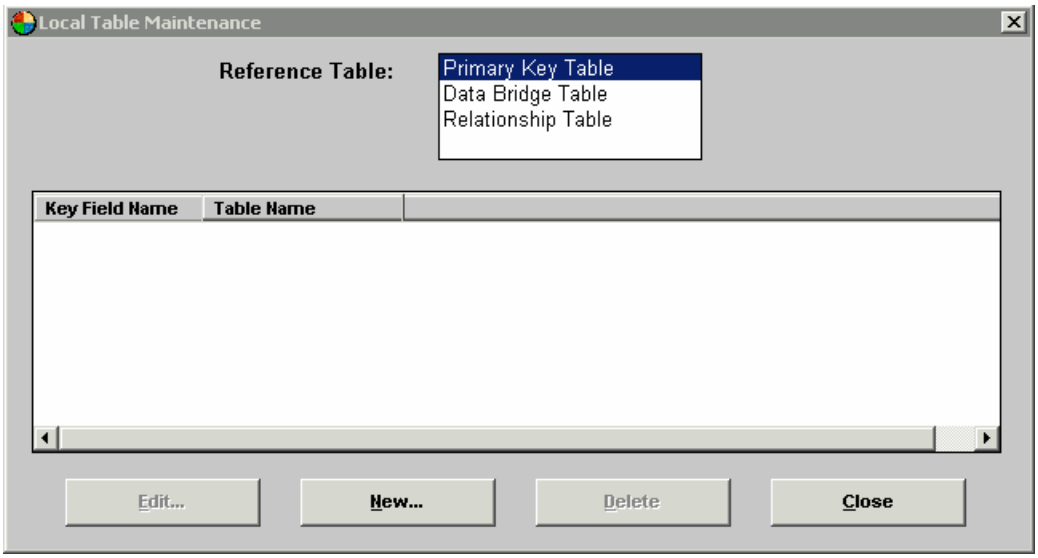
To perform table maintenance:

Select the ***Table Maintenance*** option from the ***Administration*** menu,


Administration
Table Maintenance...
Change Data Source
Create Application Data...
CAD will be grayed out when you are in "Local" mode

Or click on the Tables button on the toolbar.

The Table Maintenance dialog displays:



The Table Maintenance window provides the capability to maintain the system tables. The system tables include the Primary Key, Data Bridge, Relationship and Security Reference tables. The Security Reference table is only available to users with System-level access when the LAN data source is selected.

Primary Key Table

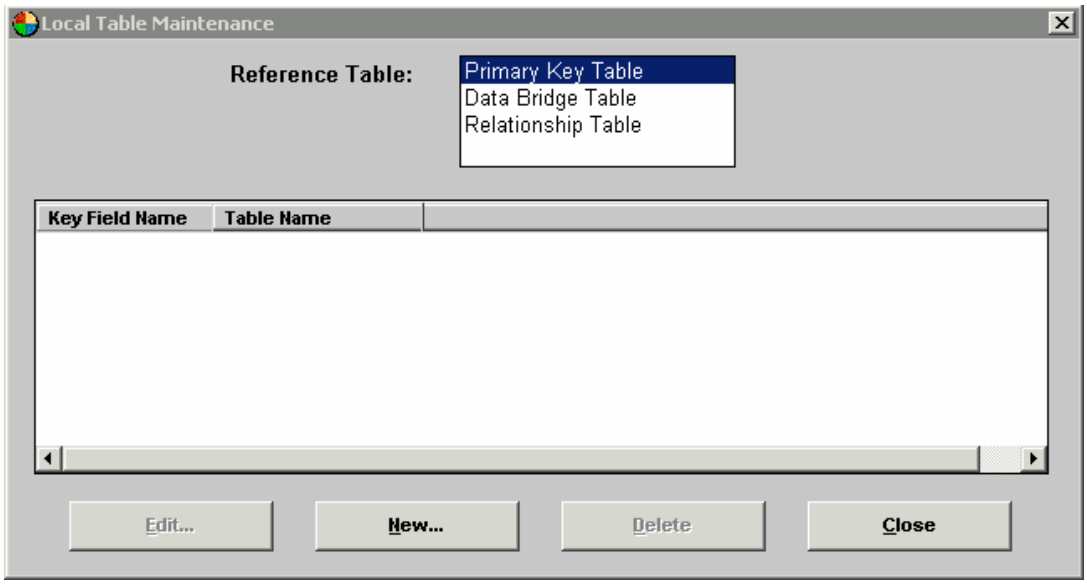
The Primary Key table, Data Bridge table and the Relationship table are used to register data source fields used for creating and running queries within Data Bridge. Registering a field starts with registering fields in the Primary Key table.

The fields registered in the Primary Key table are used to join or combine tables in queries. Do not register all the fields in a particular table in the Primary Key table. Select one field to represent the entire table. The field registered in the Primary Key table does not have to be the table's actual primary key, but can be any field in the table. A particular field (e.g., Fac_id) can only be registered once in the Primary Key table. Registered fields are referred to as key fields.

Inserting a New Primary Key

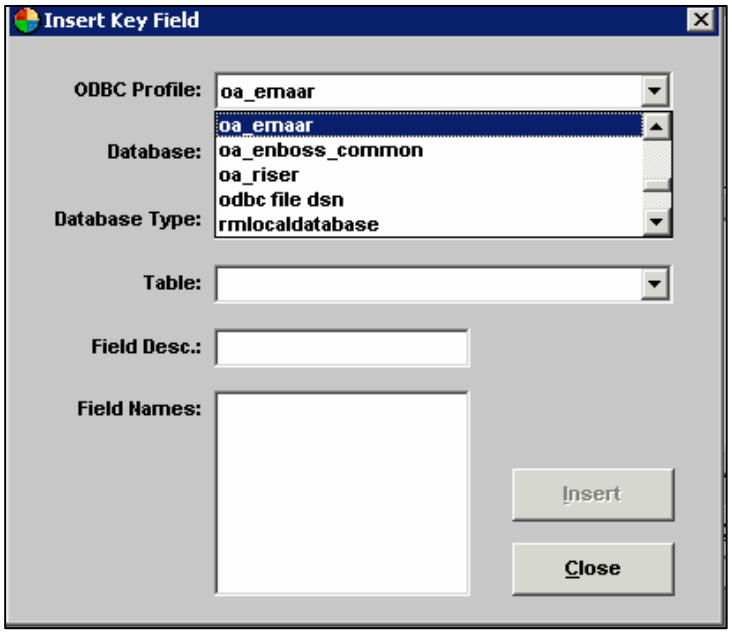
To insert a new Primary key (key field),

1. Highlight ***Primary Key Table*** from the ***Table Maintenance*** dialog and then click ***New***.



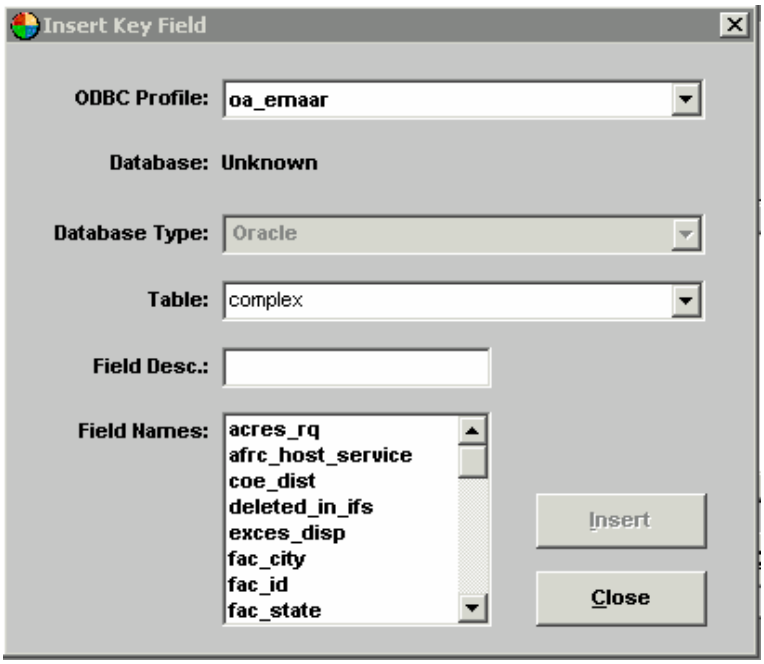
*(**Note:** This window provides the capability to insert, delete and edit primary keys. Primary keys are used to combine data in multiple tables so that the user can use this data in creating queries.)*

2. The *Insert Key Field* dialog displays, as shown below. The *Insert Key Field* dialog provides the capability to select key fields from tables in various Open Database Connectivity (ODBC) profiles. The ODBC Profile drop down list box is automatically populated with registered profiles.

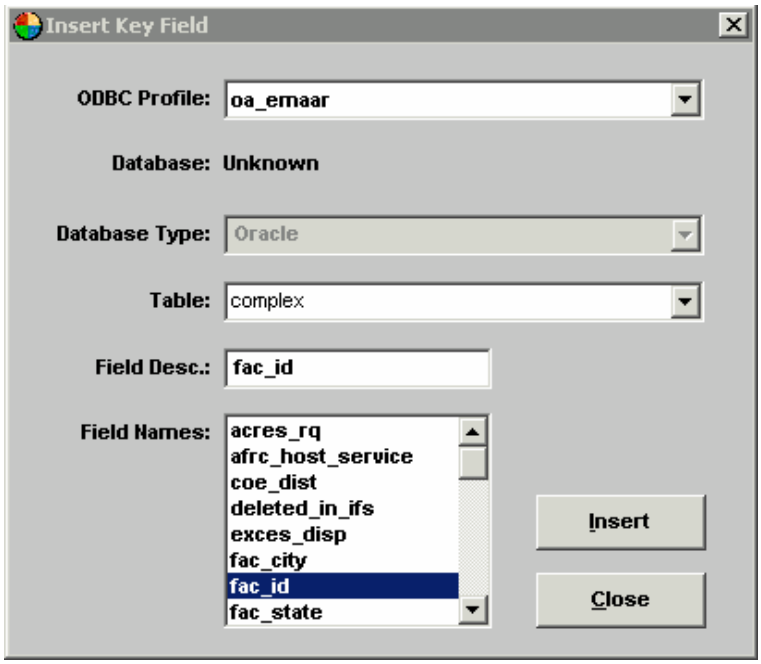


3. Select an ODBC profile from the *ODBC Profile* drop down box. If a new ODBC profile needs to be created for the table you want to insert, follow the Windows XP process for creating ODBC Profiles or call the Engineer Automation Help Desk at 1-800-447-5737.

4. Select a table from the *Table* drop down list, or type the name of the table in the *Table* field. The Field Names list box is populated with the table's fields. If any fields from the selected table have already been registered in the Primary Key table, they do not appear in the list.



5. Select a field from the *Field Names* list box. Be sure the field's values are common *(i.e. not necessarily the same field name)* to those in any other tables that you wish to link together.



6. Click ***Insert*** in the Insert New Filed dialog , then ***OK*** in the confirmation message box..
7. Click ***Close*** to return to the *Table Maintenance* dialog.

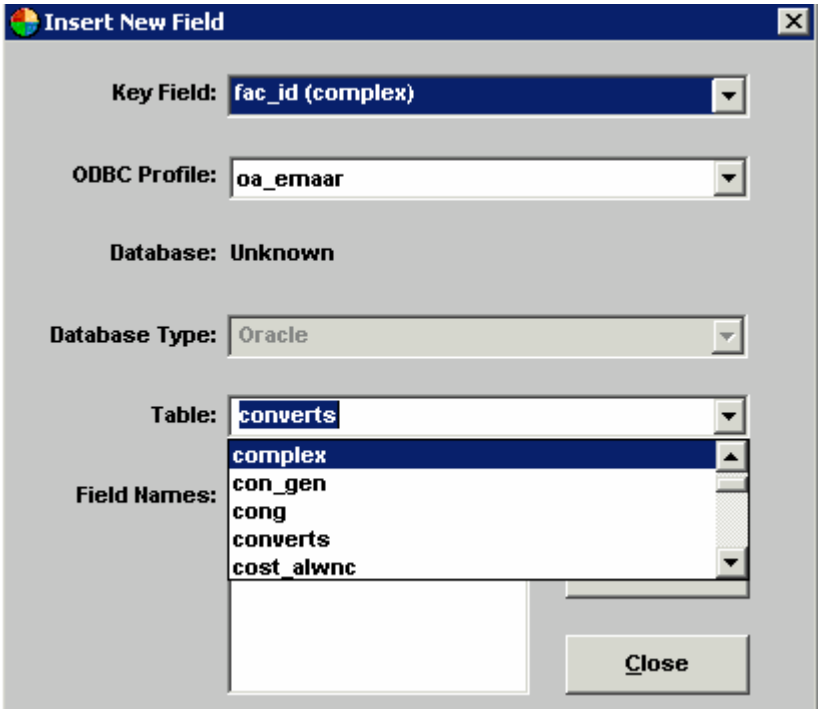
Data Bridge Table

The fields registered in the Data Bridge table are those that can be used to build queries and pull data from tables. Registering fields from different tables under the same key field (e.g., Fac_id) creates a link between the tables using the key field. The descriptions are editable but must remain unique.

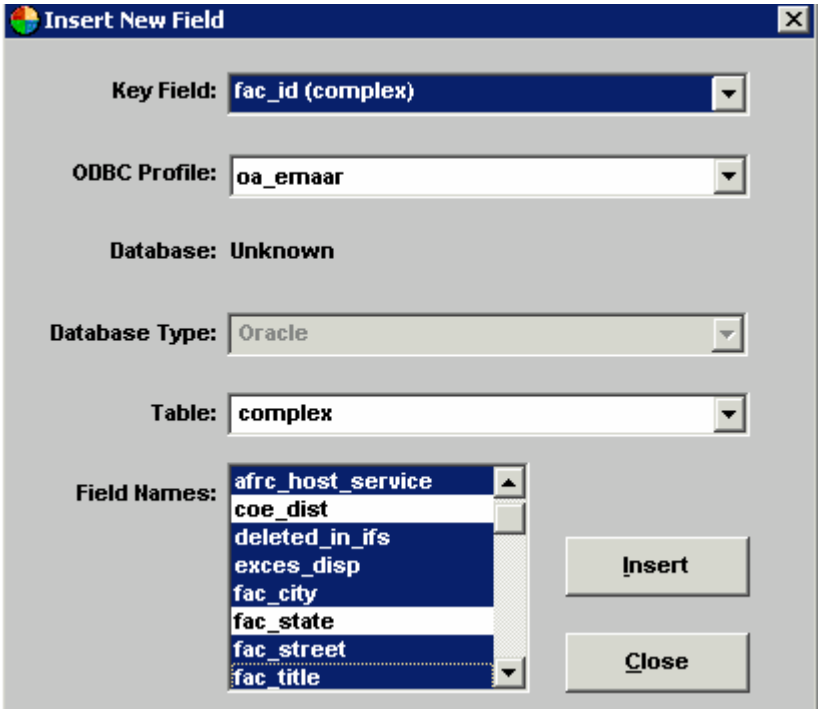
Inserting a New Field into the Data Bridge Table

To insert and register a new field into the *Data Bridge Table,*

1. Select ***Data Bridge Table*** from the *Reference Table* list box. Note that it is already populated.
2. Click the ***New*** button to insert a field. The *Insert New Field* dialog appears.
3. Choose a ***Key Field***, ***ODBC Profile***, and ***Table*** to choose your fields from.



4. While holding the <CTRL> key, select all of the fields you wish to query from or hold the <SHIFT> key, select the first record and last record you wish to query from.



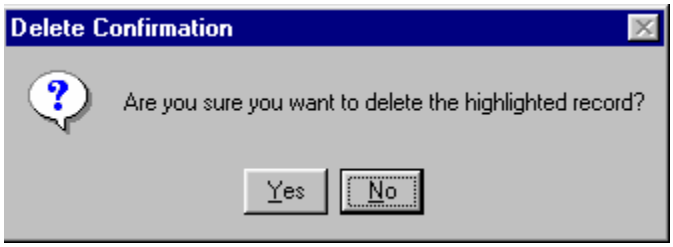
5. Click ***Insert***, then ***Close***. Click ***Close*** to return to the *Table Maintenance* dialog. All of the selected fields should appear in the Data Bridge Table.

Deleting a Field from the Data Bridge Table

ENSURE YOU ARE ON THE **LOCAL DATA SOURCE** BEFORE ADDING OR DELETING KEYS, FIELDS, TABLES.

To delete a field from the *Data Bridge Table:*

1. Highlight the record to delete and click the ***Delete*** button. The *Delete Confirmation* message dialog displays, as shown on the next page.

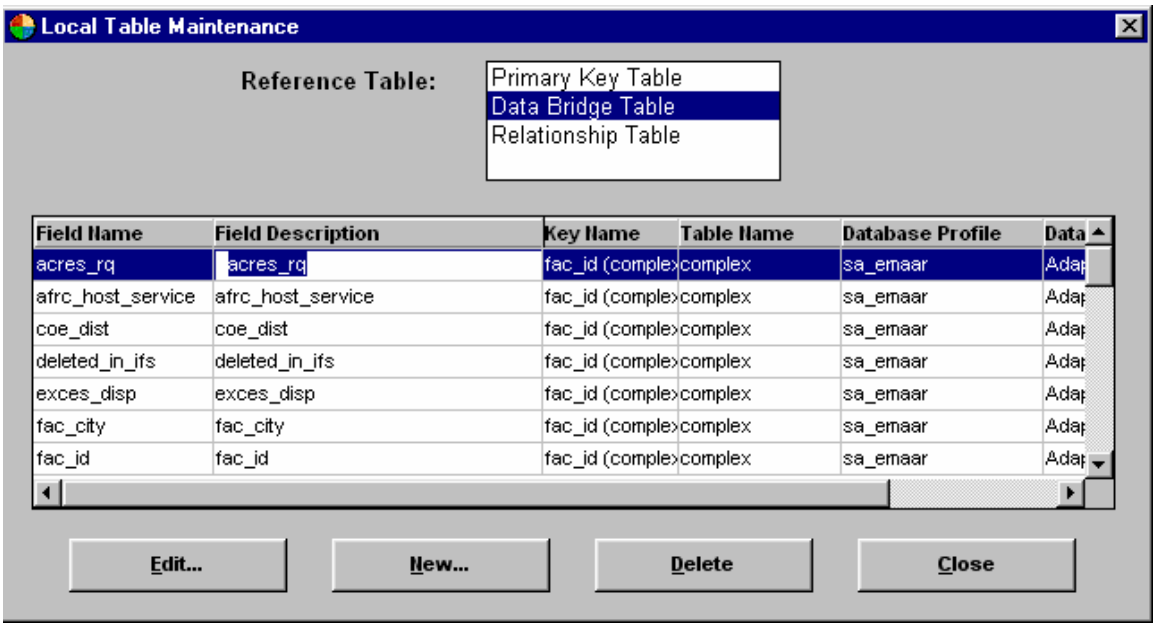


2. Click ***Yes*** to delete the record, or ***No*** to return to the *Table Maintenance* dialog.

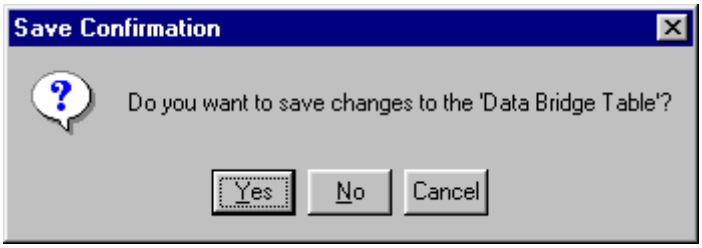
Editing a Field Description

To edit a field description,

1. Click on the desired *Field Description* field in the *Data Bridge Table*.
2. Type in a new unique description.



3. To save changes click the ***Close*** button. The *Save Confirmation* message dialog displays.



4. Click the ***Yes*** button to save the changes, ***No*** to discard the changes, or ***Cancel*** to return to the *Table Maintenance* dialog.

Working with Queries

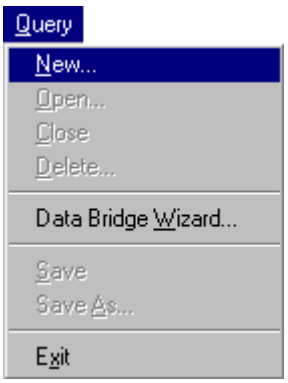
There are many options for working with queries. Queries can be created, opened, edited, closed, deleted, saved, saved with a different name, designated as Public, Private, or Read-only and run to retrieve the results from the database(s). The SQL generated by the query can also be viewed. When building a query, a primary key must be chosen. All of the fields in the Data Bridge table that were entered under that primary key will be available to query. If that primary key is in a relationship, all of the fields in the Data Bridge table that are related to that primary key will also be available to query.

Creating a New Query

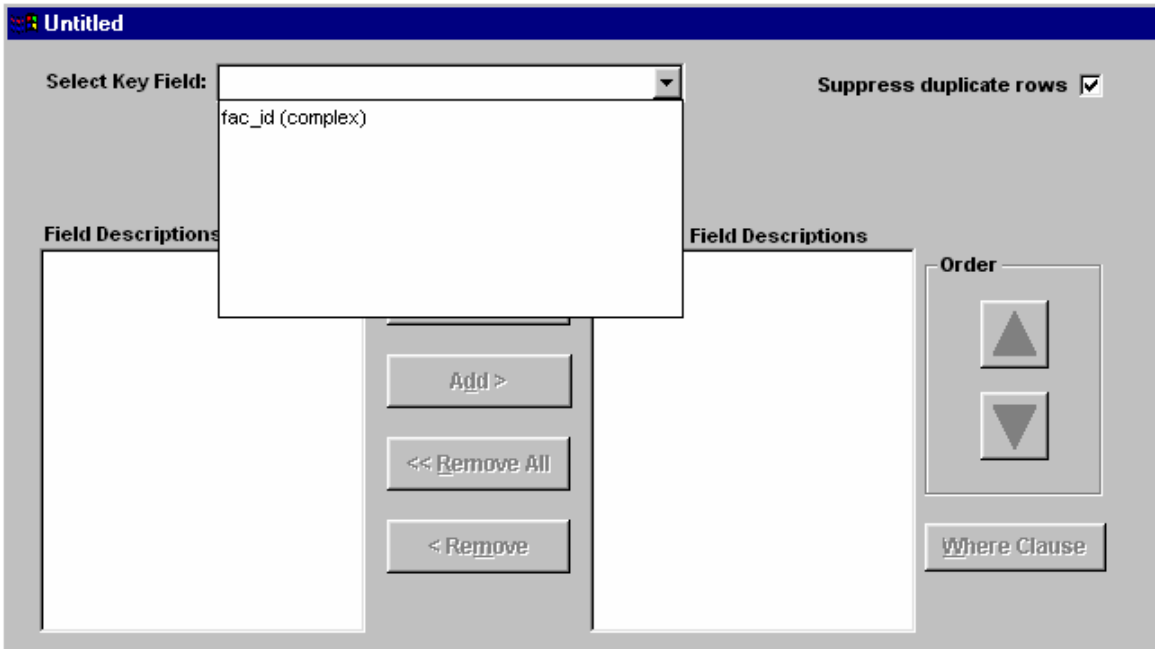
To create a new query,

1. Select the ***New*** option from the ***Query*** menu, as displayed below, or click on the

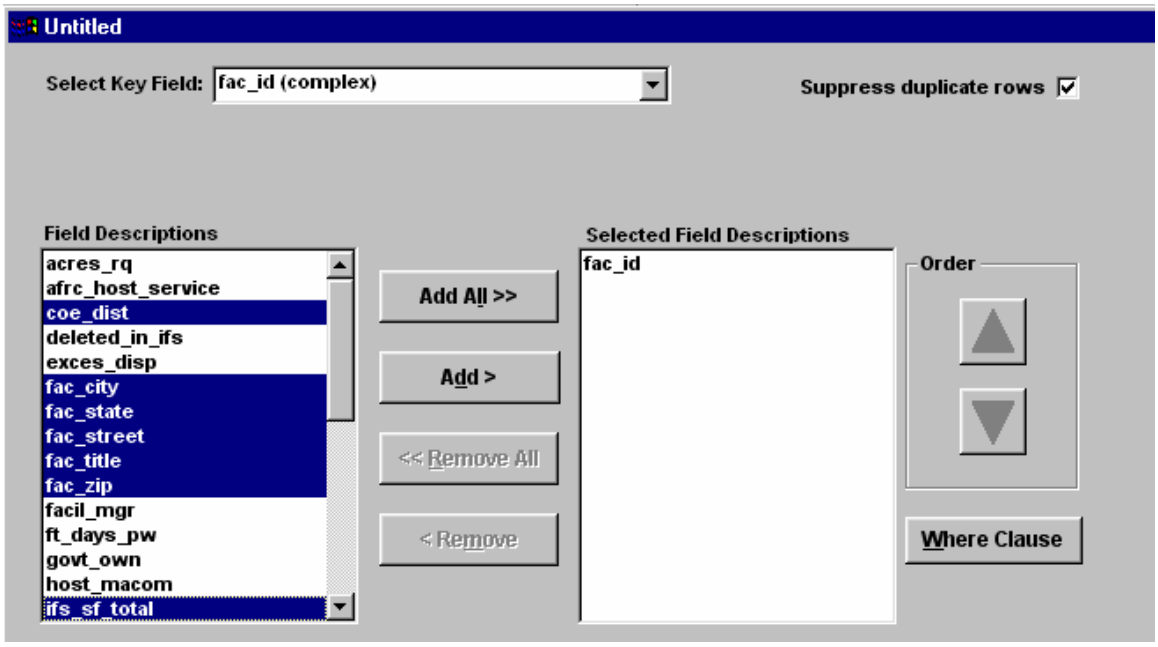
toolbar button.



The 'Untitled' query dialog, as displayed below, allows the user to create a new query. On this dialog, the user can select a key field and data fields to create the new query. An additional checkbox is available on this dialog that will toggle suppressing duplicate information. When checked, this option will only show one unique value if multiple records are returned that match the query being built.



2. Select a key field from the *Select Key Field* drop down list box. If the key fields are in a relationship, a *Relationship Found* message will appear. Choosing *Yes* will make all of the fields in a relationship with the selected key field available for query. Choosing *No* will make only the fields entered under the selected key field available for query.
3. Select the fields from the *Field Descriptions* list box that you want to include in your query and click ***Add***. To choose all of the fields, click ***Add All***.



4. To reorder the field, highlight the field in the *Selected Field Descriptions* list box and click ▲ or ▼ to move the highlighted field.

5. To remove fields, highlight the fields to remove and click the ***Remove*** button. To remove all of the selected fields from the query, click the ***Remove All*** button.

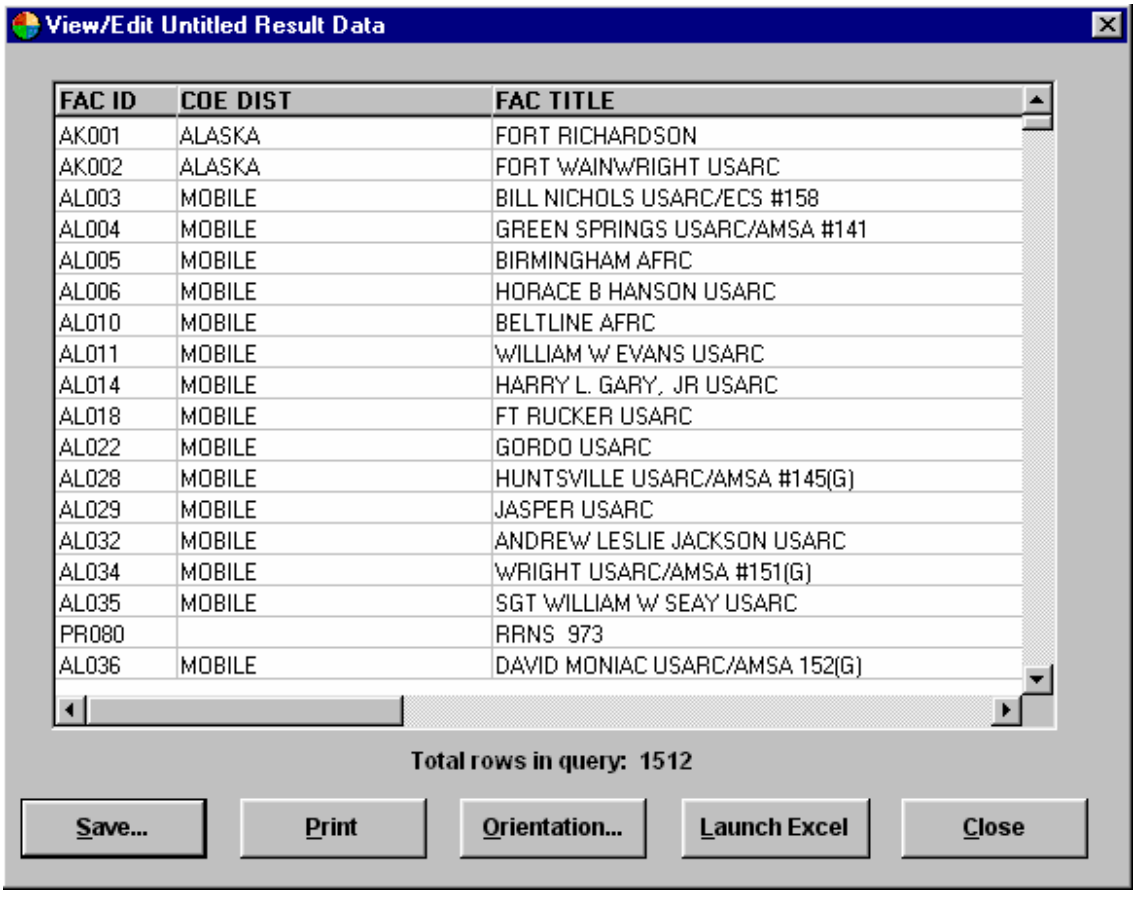
Running a Query

To run a query,

1. To run the query with the filter, select ***Execute*** from the menu bar and click ***Run*** or click on the

toolbar button.

The *Data Bridge* begins to process the query and the user can view the data as it is being pulled from the source tables. When the query finishes processing, the ***View/Edit Result Data*** dialog appears. This dialog, as displayed on the next page, provides the capability to view, edit, save and print the queried data.


View/Edit Untitled Result Data
FAC ID
COE DIST
FAC TITLE
AK001 ALASKA FORT RICHARDSON
AK002 ALASKA FORT WAINWRIGHT USARC
AL003 MOBILE BILL NICHOLS USARC/ECS #158
AL004 MOBILE GREEN SPRINGS USARC/AMSA #141
AL005 MOBILE BIRMINGHAM AFRC
AL006 MOBILE HORACE B HANSON USARC
AL010 MOBILE BELTLINE AFRC
AL011 MOBILE WILLIAM W EVANS USARC
AL014 MOBILE HARRY L. GARY, JR USARC
AL018 MOBILE FT RUCKER USARC
AL022 MOBILE GORDO USARC
AL028 MOBILE HUNTSVILLE USARC/AMSA #145(G)
AL029 MOBILE JASPER USARC
AL032 MOBILE ANDREW LESLIE JACKSON USARC
AL034 MOBILE WRIGHT USARC/AMSA #151(G)
AL035 MOBILE SGT WILLIAM W SEAY USARC
PR080 RRNS 973
AL036 MOBILE DAVID MONIAC USARC/AMSA 152(G)
Total rows in query: 1512
Save...
Print
Orientation...
Launch Excel
Close

2. If you are querying an Excel Spreadsheet, the ***Choose an Excel 5 Workbook as Database*** dialog appears. Select the XLS file you are querying and click ***OK***. The ***View/Edit Untitled Result Data*** dialog appears with the results of the query.

Filtering Queries (Building a WHERE Clause)

In order to see more specific results from a query with multiple data sources, more complex filters can be applied. A *WHERE* clause limits the query results to data that matches the criteria. For example, State = 'VA', Fiscal Year > 1999, Start_date >= 1999/10/01.

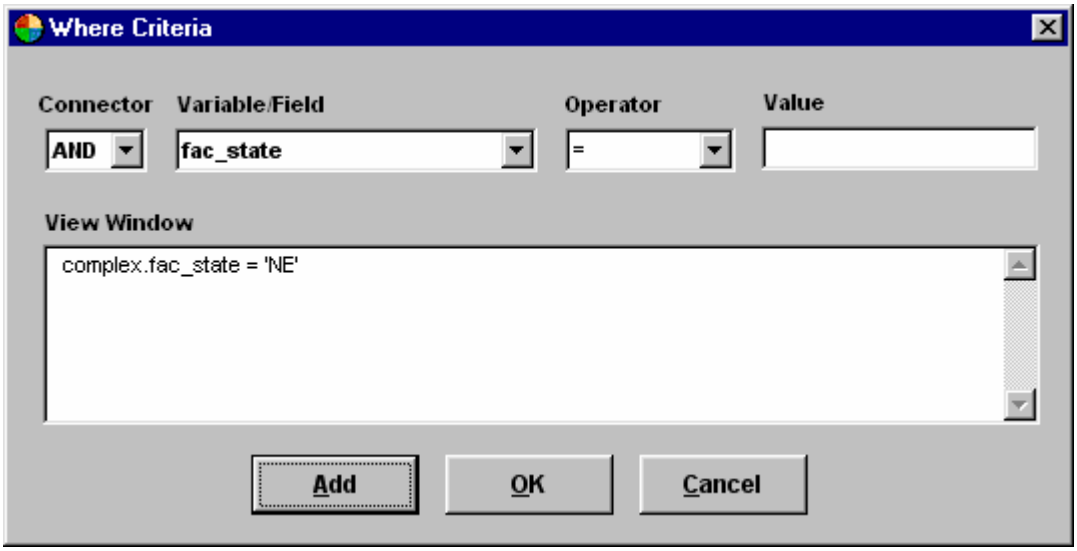
There are two special operators within the Where Criteria window called IS NULL and IS NOT NULL. By default, Data Bridge will ignore values that are blank (*i.e.* the fields don't have data in them). This can produce erroneous results by not reporting all rows that match a query. For example, if a query's where clause is *fac_state <> 'AL'* and there are records without state information, then those records will not show up in the results.

The Data Bridge corrects this by automatically adding the IS NULL clause to the criteria and avoids missing the correct data. This correction is added only when the operator is '<>', however it can be added manually at any time by the user to find records with blanks in a specific field.

The filter in the query below will produce the following results: All of the Army Reserve units in Kansas or Missouri that are not closing, have an assigned strength greater than 10, and have no assigned officers.

To filter a query:

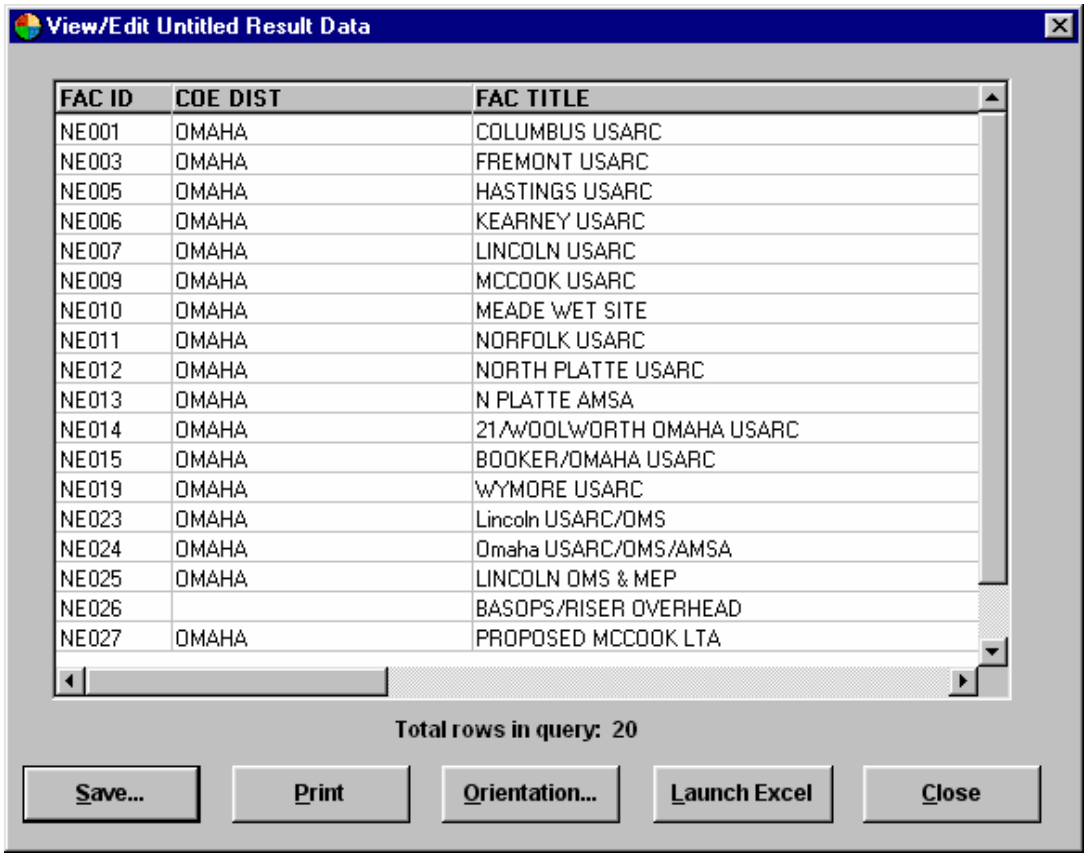
1. Click the ***Where Clause*** button from the ***Query*** dialog.
2. The *Where Criteria* dialog displays. This dialog is used to develop the filter criteria.



3. Within the *Where Criteria* dialog select the column from the *Variable/Field* drop down box that you would like to include in the filter.
4. Select the operator from the *Operator* drop down box. An operator is a mathematical function that returns a value from an expression.
5. Enter a value in the *Value* box. The *Value* box is case sensitive.
6. Once your filter is defined, click ***Add*** to enter the filter into the *View Window.*

7. To add the additional where clauses to the current filter, select a connector from the *Connector* box and repeat Steps 1 - 6. The *AND* connector finds the mathematical intersection between the two criteria and the *OR* connector creates a union.
8. Click ***OK*** once the filter is defined.
9. Select **Execute => Run** or select the Run

toolbar button.

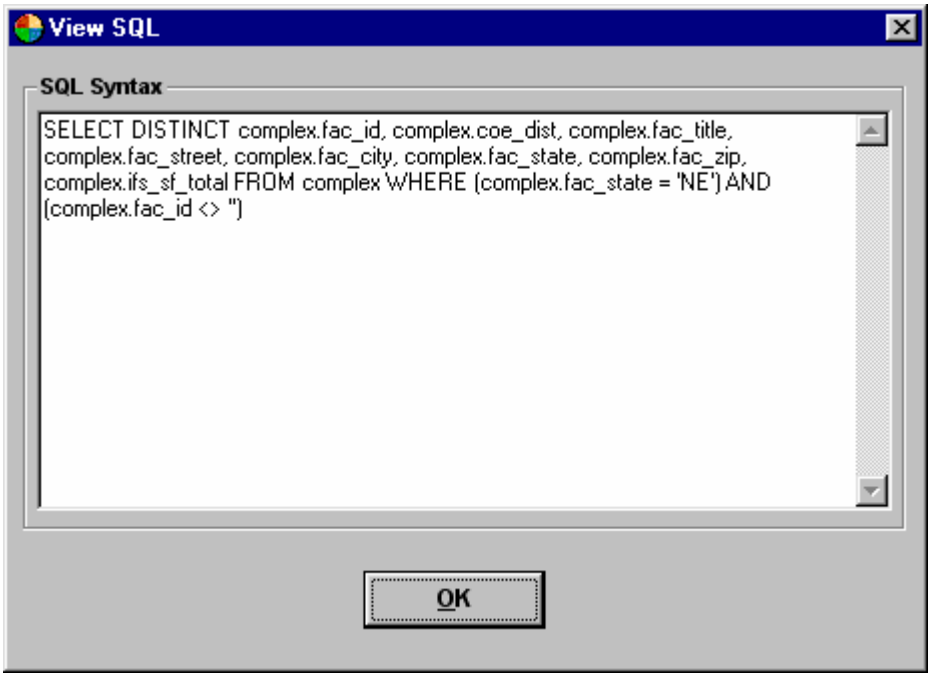


Viewing a Query's SQL Syntax

Notice in the example below that the query begins SELECT DISTINCT. This means that the user had checked to *Suppress duplicate rows* box in the query's main dialog. To view an active query's SQL syntax,

1. Select the ***View SQL*** option from the ***Execute*** menu.

The ***View SQL*** dialog displays:

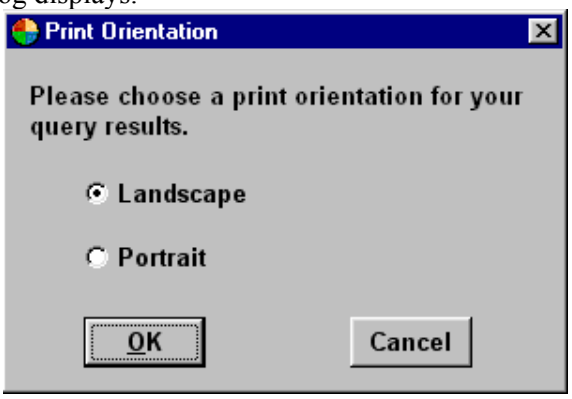

View SQL
SQL Syntax
SELECT DISTINCT complex.fac_id, complex.coe_dist, complex.fac_title, complex.fac_street, complex.fac_city, complex.fac_state, complex.fac_zip, complex.ifs_sf_total FROM complex WHERE (complex.fac_state = 'NE') AND (complex.fac_id <> '')
OK

If you are querying an Excel Spreadsheet, the *Choose an Excel 5 Workbook as Database* window appears. Select the XLS file you are querying and click *OK*. The *View/Edit Untitled Result Data* window appears with the results of the query.

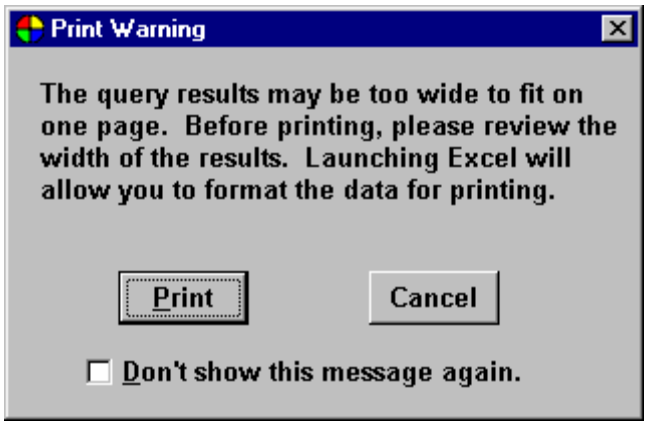
Printing a Query

To print query results,

1. Click the ***Orientation*** button on the ***View/Edit Result Data*** window. ***The Print Orientation*** dialog displays.



2. Select one of the radio buttons, *Landscape* or *Portrait*. The *Landscape* radio button is selected by default.
3. Click the ***OK*** button.
4. Click the ***Print*** button on the *View/Edit Result Data* window. The *Print Warning* message dialog displays.

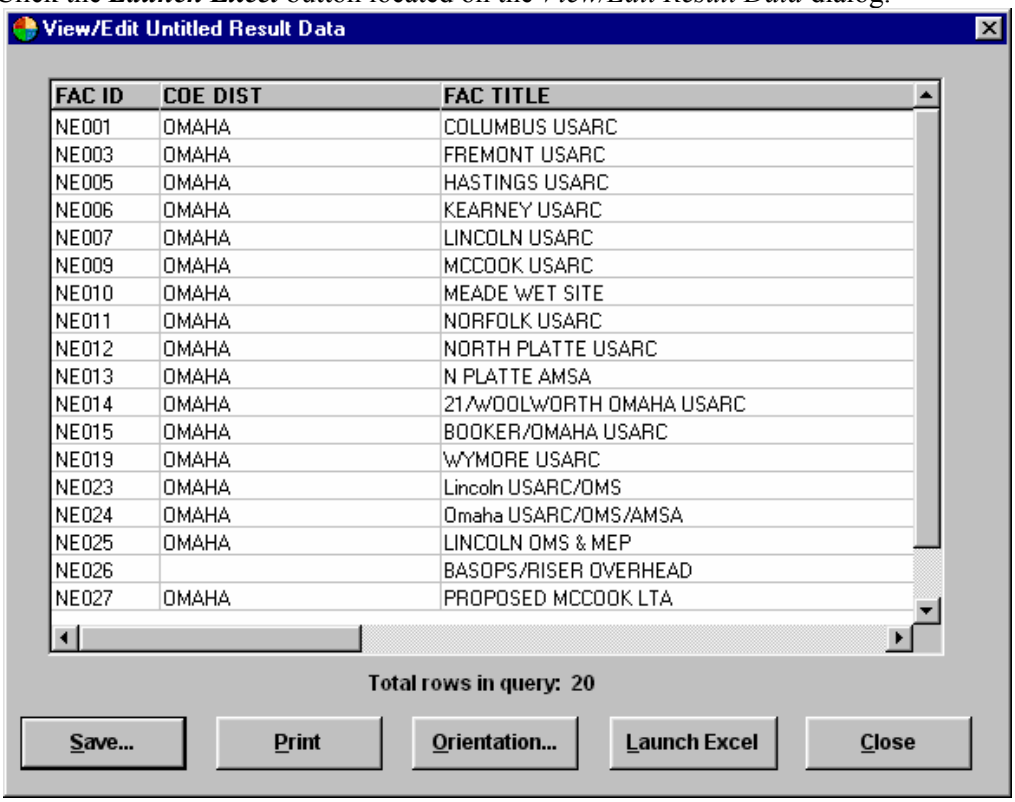

Print Warning
The query results may be too wide to fit on one page. Before printing, please review the width of the results. Launching Excel will allow you to format the data for printing.
Print
Cancel
Don't show this message again.

5. To prevent the *Print Warning* message box from displaying the next time a query is printed, check the *Don't show this message again* checkbox.
6. Click the ***Print*** button. A data dump of the query results in the *View/Edit Result Data* dialog is produced.

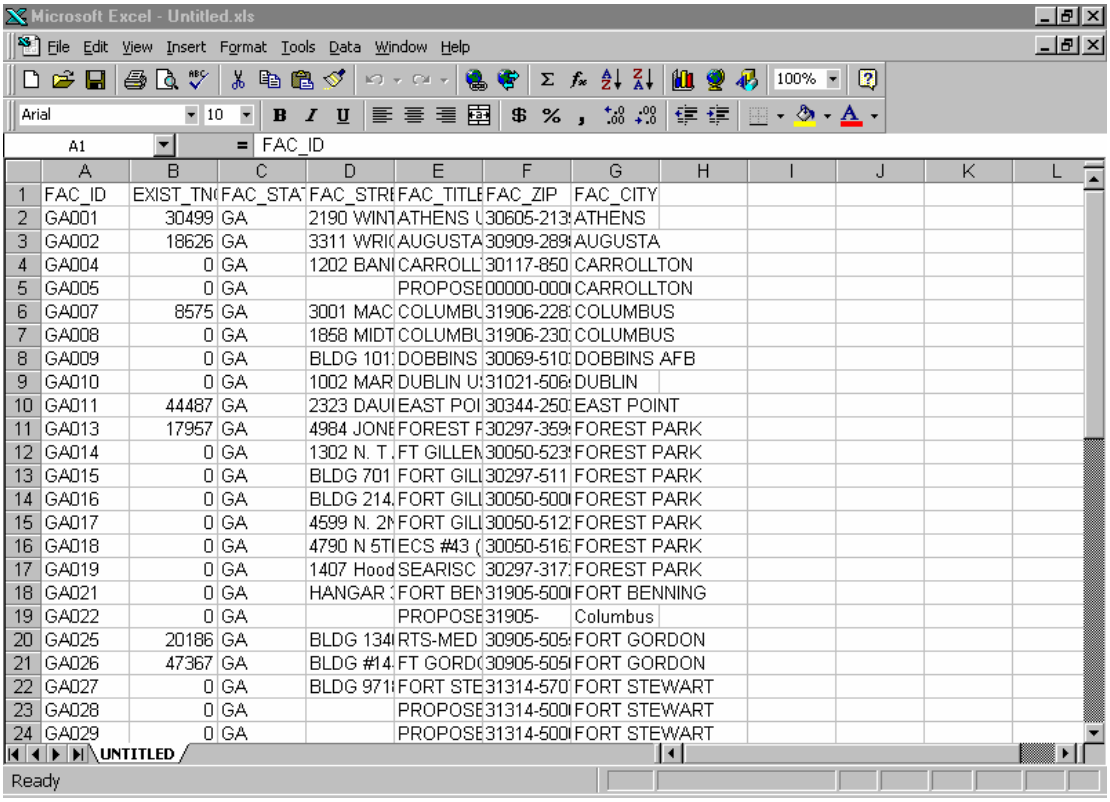
Loading a Copy of the Data into Microsoft Excel

To load a copy of query results into MS Excel,

1. Click the ***Launch Excel*** button located on the *View/Edit Result Data* dialog.


View/Edit Untitled Result Data
FAC ID | COE DIST | FAC TITLE
NE001 | OMAHA | COLUMBUS USARC
NE003 | OMAHA | FREMONT USARC
NE005 | OMAHA | HASTINGS USARC
NE006 | OMAHA | KEARNEY USARC
NE007 | OMAHA | LINCOLN USARC
NE009 | OMAHA | MCCOOK USARC
NE010 | OMAHA | MEADE WET SITE
NE011 | OMAHA | NORFOLK USARC
NE012 | OMAHA | NORTH PLATTE USARC
NE013 | OMAHA | N PLATTE AMSA
NE014 | OMAHA | 21/WOOLWORTH OMAHA USARC
NE015 | OMAHA | BOOKER/OMAHA USARC
NE019 | OMAHA | WYMORE USARC
NE023 | OMAHA | Lincoln USARC/OMS
NE024 | OMAHA | Omaha USARC/OMS/AMSA
NE025 | OMAHA | LINCOLN OMS & MEP
NE026 | | BASOPS/RISER OVERHEAD
NE027 | OMAHA | PROPOSED MCCOOK LTA
Total rows in query: 20
Save...
Print
Orientation...
Launch Excel
Close

2. If MS Excel has been properly installed, it will launch and will load an unformatted copy of the query data into a new spreadsheet. The name of the new spreadsheet will default to the first eight characters of the query's name. It will be saved in the C:\ARGISS\DBRIDGE\DATA directory if ARGISS was installed on the C drive.



	A	B	C	D	E	F	G	H	I	J	K	L
1	FAC_ID	EXIST_TN(	FAC_STA	FAC_STRE	FAC_TITLE	FAC_ZIP	FAC_CITY					
2	GA001	30499	GA	2190 WINT	ATHENS U	30605-213	ATHENS					
3	GA002	18626	GA	3311 WRI(	AUGUSTA	30909-289	AUGUSTA					
4	GA004	0	GA	1202 BANI	CARROLL	30117-850	CARROLLTON					
5	GA005	0	GA		PROPOSE	00000-000	CARROLLTON					
6	GA007	8575	GA	3001 MAC	COLUMBU	31906-228	COLUMBUS					
7	GA008	0	GA	1858 MIDT	COLUMBU	31906-230	COLUMBUS					
8	GA009	0	GA	BLDG 101	DOBBINS	30069-510	DOBBINS AFB					
9	GA010	0	GA	1002 MAR	DUBLIN U	31021-506	DUBLIN					
10	GA011	44487	GA	2323 DAU	EAST POI	30344-250	EAST POINT					
11	GA013	17957	GA	4984 JONE	FOREST F	30297-359	FOREST PARK					
12	GA014	0	GA	1302 N. T.	FT GILLEN	30050-523	FOREST PARK					
13	GA015	0	GA	BLDG 701	FORT GIL	30297-511	FOREST PARK					
14	GA016	0	GA	BLDG 214	FORT GIL	30050-500	FOREST PARK					
15	GA017	0	GA	4599 N. 2N	FORT GIL	30050-512	FOREST PARK					
16	GA018	0	GA	4790 N 5TI	ECS #43 (	30050-516	FOREST PARK					
17	GA019	0	GA	1407 Hood	SEARISC	30297-317	FOREST PARK					
18	GA021	0	GA	HANGAR 1	FORT BEN	31905-500	FORT BENNING					
19	GA022	0	GA		PROPOSE	31905-	Columbus					
20	GA025	20186	GA	BLDG 134	RTS-MED	30905-505	FORT GORDON					
21	GA026	47367	GA	BLDG #14	FT GORD(	30905-505	FORT GORDON					
22	GA027	0	GA	BLDG 971	FORT STE	31314-570	FORT STEWART					
23	GA028	0	GA		PROPOSE	31314-500	FORT STEWART					
24	GA029	0	GA		PROPOSE	31314-500	FORT STEWART					

(***Note***: Query results over 65,536 rows long will be truncated.)

3. Use Excel's functionality to manipulate, format, preview, save and/or print the query data.

The ***Save Data Information*** option allows users to save data as a Sybase SQL Anywhere table, a Microsoft Access table, a FoxPro table, or a Microsoft Excel workbook by using one of the existing ODBC profiles.

Saving a Query

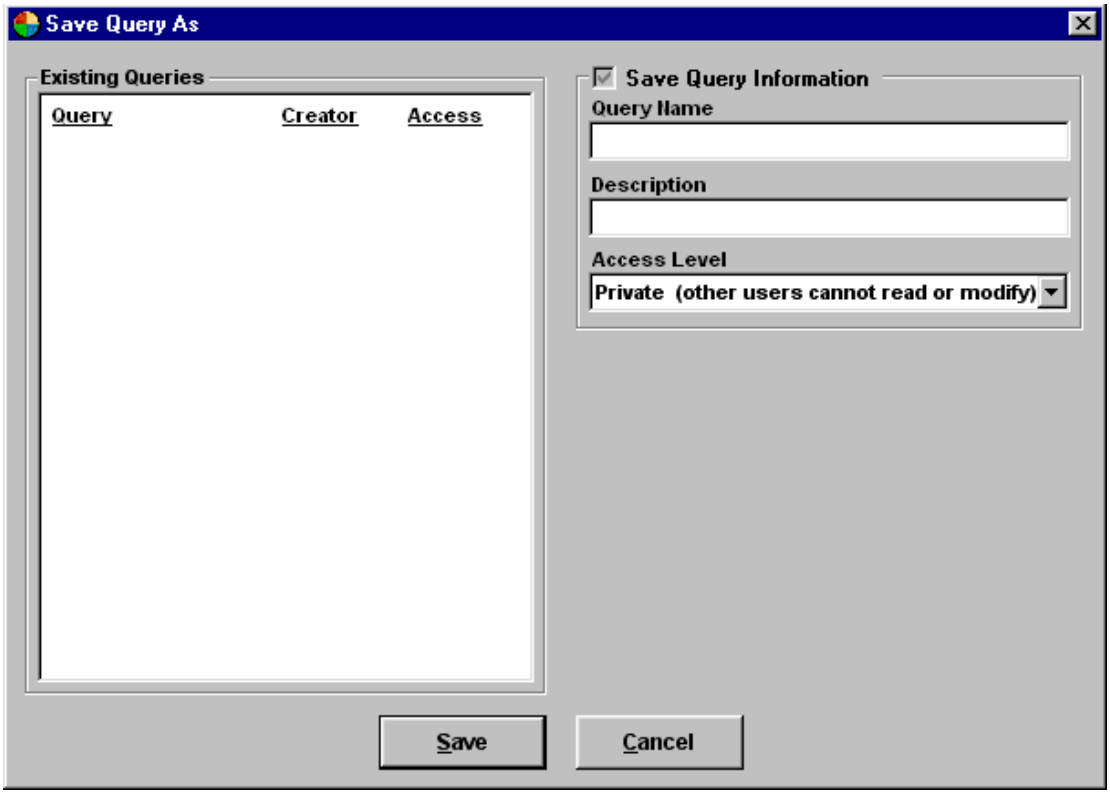
Users may save a query definition, the results of the query, or both. The *Save Query Information* option allows users to save a query with a name, description and access level. A description of the different query access levels is shown below.

Access Level	**Who Can See the Query?**	**Who Can Edit and Delete the Query?**
Private	Query Creator and System Users	Query Creator and System Users
Read-only	All Users	Query Creator and System Users
Public	All Users	All Users

To save a query:

1. Click the ***Save***

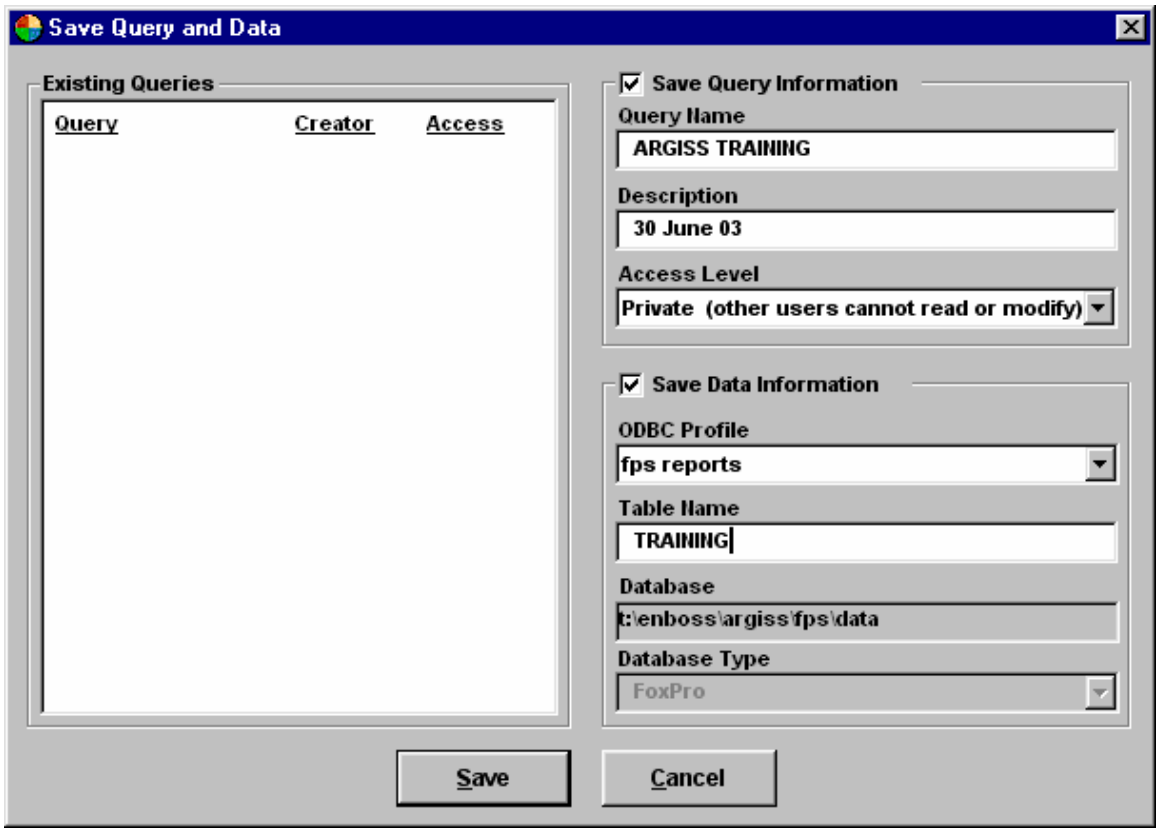
toolbar button. The *Save Query As* dialog displays.
2. Enter a *Query Name* and *Description,* and choose an *Access Level.* The *Query Name* can be no longer than twenty characters and must not contain any spaces.



Saving a Query with an ODBC Profile

To save the result data with an ODBC profile:

1. Click the ***Save*** button in the *View/Edit Result Data* dialog.
2. Check the ***Save Data Information*** checkbox.
3. Select an ODBC profile from the drop down list. To report on the data in InfoMaker, use the ***fps reports*** profile.
4. Enter a ***Table Name***. The name can be no longer than eight characters and must not contain any spaces.



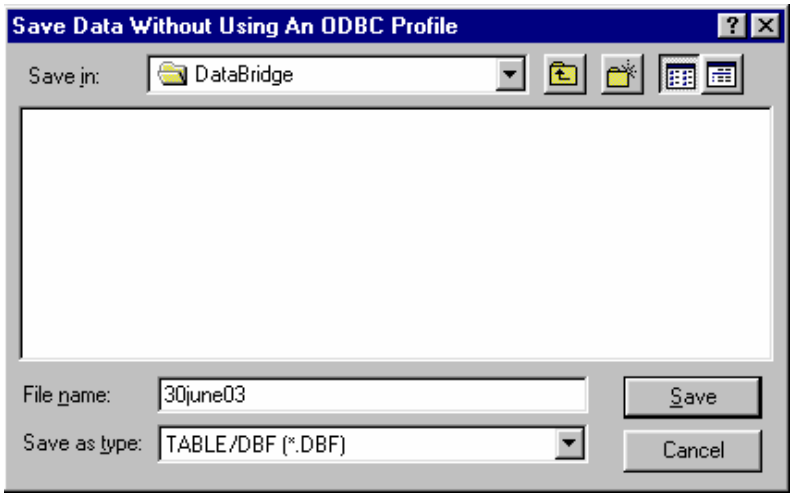
5. Click the ***Save*** button. Click ***OK*** on the confirmation message boxes.

When saving the data without an ODBC profile, the data can be saved to a DBF file, a text file, a Microsoft Excel file, or a Lotus 123 file.

Saving a Query without an ODBC Profile

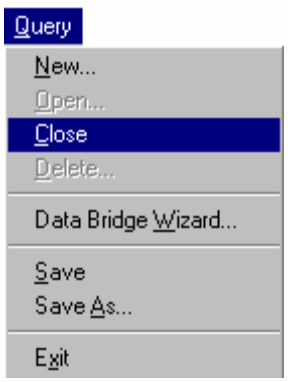
To save the data without using an ODBC profile:

1. Click the ***Save*** button in the *View/Edit Result Data* dialog.
2. Check the ***Save Data Information*** checkbox.
3. Select ***(none)*** from the *ODBC Profile* drop down list.
4. Enter a *Table Name*. The name can be no longer than eight characters and must not contain any spaces.
5. Click ***Save***.
6. In the *Save Data Without Using An ODBC Profile* dialog, open to the folder you wish to save the data in, and select a file type from the *Save as Type* drop down list.



7. Click the ***Save*** button, and click ***OK*** in the save confirmation message dialog.
8. Click the ***Close*** button in the ***View/Edit Data Results*** dialog.
9. Select the ***Close*** option from the ***Query*** menu, or click on the

toolbar button.



Notice you now have an Open

toolbar button.

The Relationship Table

The *Relationship Table* is used to link tables using key fields that contain the same type of data (e.g., facility IDs), but have different names (e.g., Fac_id and Facid). A relationship can only be established if the key fields are registered in the *Primary Key Table* and the fields relating to the key field are registered in the *Data Bridge Table*. The *Data Bridge* provides the option of using a relationship from the *Relationship Table* when creating a new query if a relationship exists for the selected key field. If the relationship is selected, then all the fields registered in the *Data Bridge Table* relating to the key fields in the relationship are used for the query.

Implicit v. Explicit Relationships

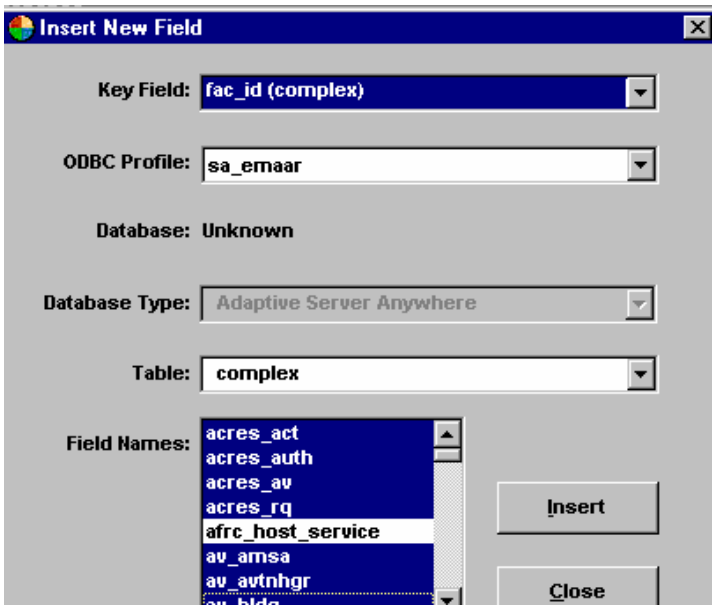
Before querying from two or more tables, there must first be a relationship between those tables. If the primary keys that you are joining the tables on have identical names, then the relationship will be *implicit*, and a join in the relationship table is not necessary. In this case, the *Data Bridge* realizes that the primary keys contain the same data, and creates the relationship for you. The relationship will not be visible in the relationship table, but you will be able to use columns from any table that contains a field name that is already in the Primary Key table.

If the primary keys on the tables you are joining have different names, then the relationship will be *explicit* and you must create it through the Relationship Tables. This allows the *Data Bridge* to realize that the tables, although the primary keys from each have different names, they contain the same data.

Inserting New Fields through an Implicit Relationship

Once a primary key has been entered into the Primary Key table, fields from any other table that have a primary key with the same name can be entered into the *Data Bridge* table. This is known as an implicit relationship.

1. Click ***New Relationship***. The *Insert New Field* dialog will appear.
2. Select a *Key Field* from the *Key Field* drop down box.



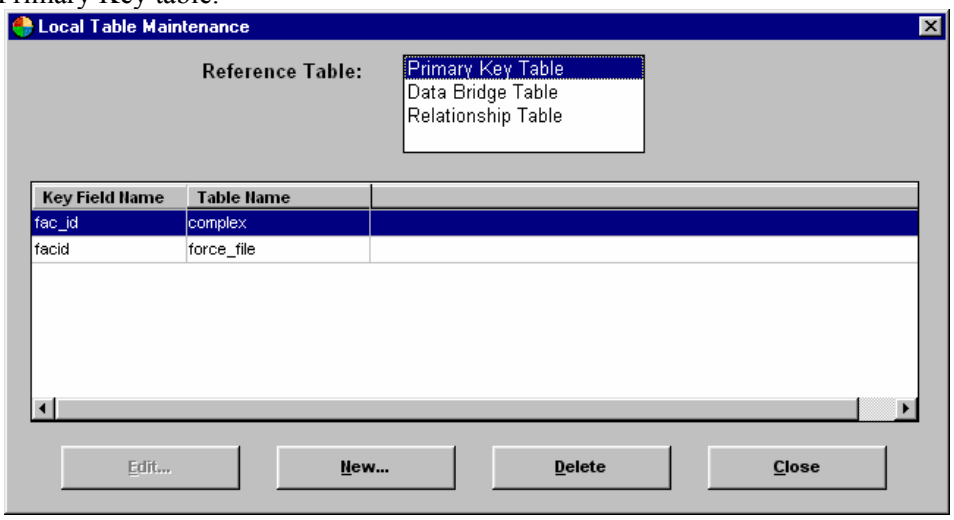
3. Select an ODBC profile from the *ODBC Profile* drop down box.
4. Select a table that contains the chosen primary key from the *Table* drop down box.
5. The *Field Names* list box will populate with fields from the selected table.
6. Select the fields to insert into the *Data Bridge* table.
7. Click on ***Insert***. The selected columns will populate in the *Data Bridge* table.

Creating an Explicit Relationship

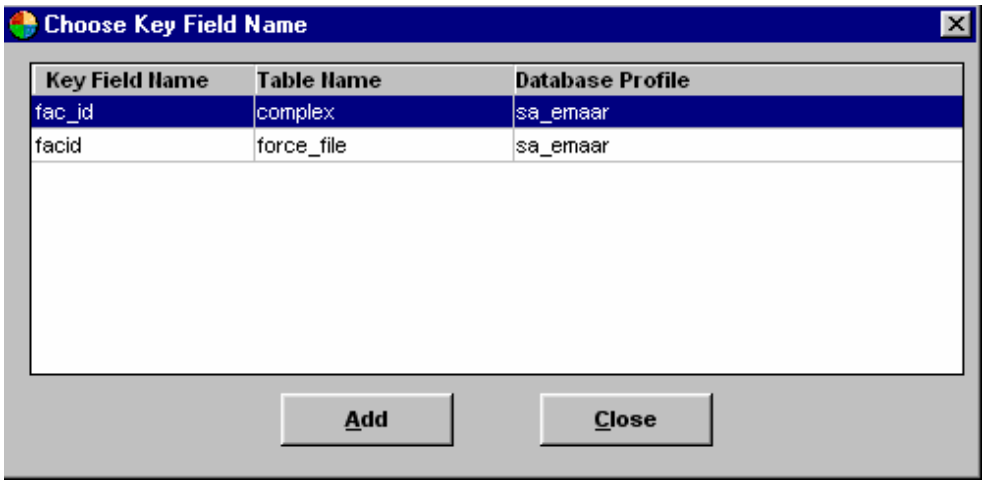
When joining two tables on fields that contain the same data but have different names, an explicit relationship must be created. This is done through the relationship table.

To add a new relationship to the Relationship Table**:**

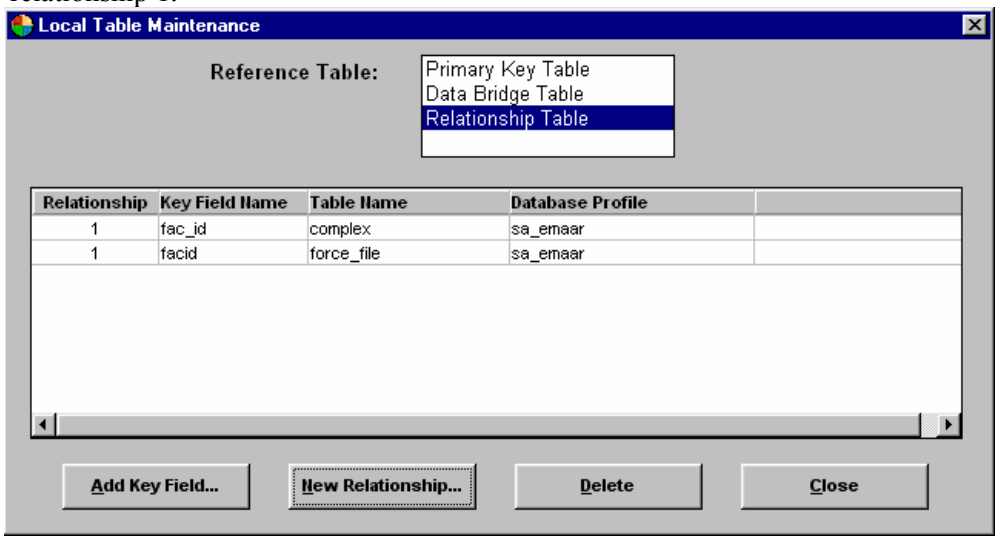
1. Be sure that the primary keys that you want to create the relationship between are in the Primary Key table.



2. Select ***Relationship Table*** from the *Reference Table* list box in the *Table Maintenance* dialog. The *Relationship Table* will appear.
3. Click ***New Relationship*** to create a new relationship.
4. The *Choose Key Field Name* dialog appears. Within this dialog, highlight a key column and click ***Add***.



5. Select a second key by highlighting the key and clicking the ***Add*** button. This will create a relationship between the two keys.
6. Click ***Close*** to return to the *Relationship Table*. The two primary keys should be in relationship 1.



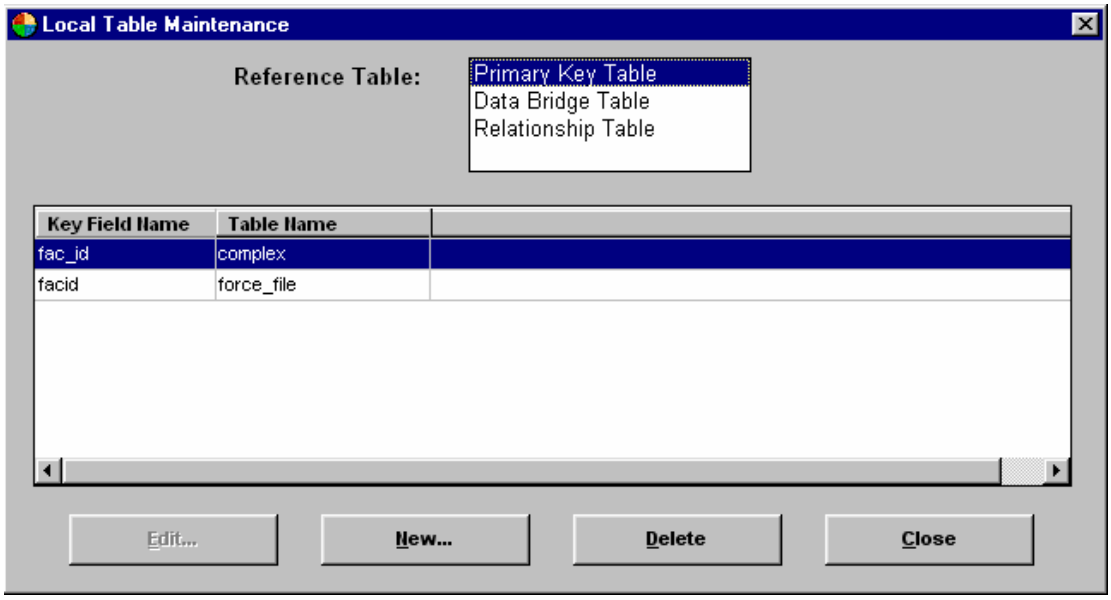
To add a new primary key to an existing relationship:

1. Select a relationship in the *Relationship Table*.
2. Click ***Add Key Field***. The *Choose Key Field Name* dialog will appear.
3. Click ***Add***. Click ***Close*** to return to the *Relationship Table.*

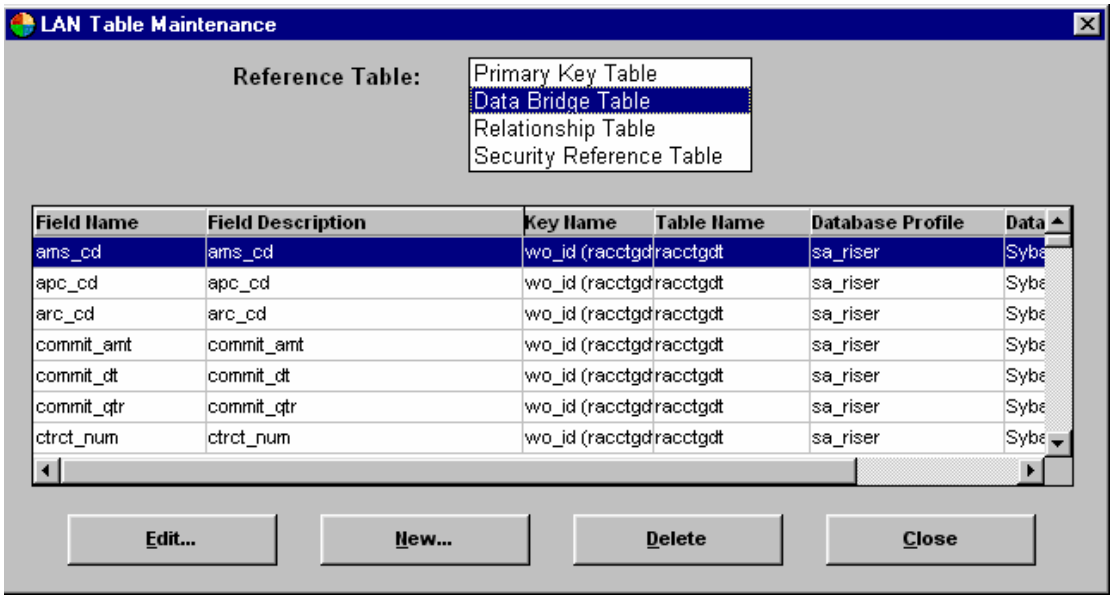
The *Relationship Table* appears displaying the modified relationship.

Creating a Relationship

Before creating a relationship, be sure that there are at least two primary keys in the *Primary Key Table* that contain the same data but have different names (e.g., Fac_id and Facid).



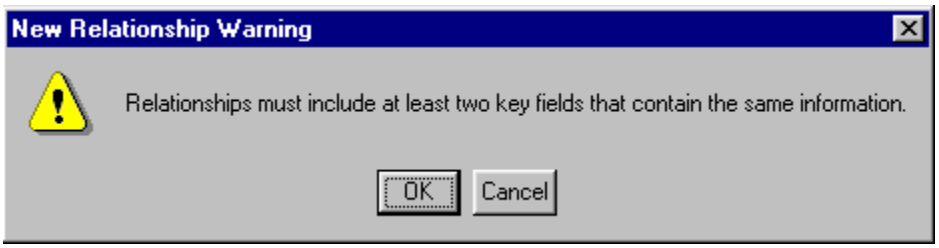
Also be sure that all of the fields from the different tables that you wish to query from are registered in the *Data Bridge* table.



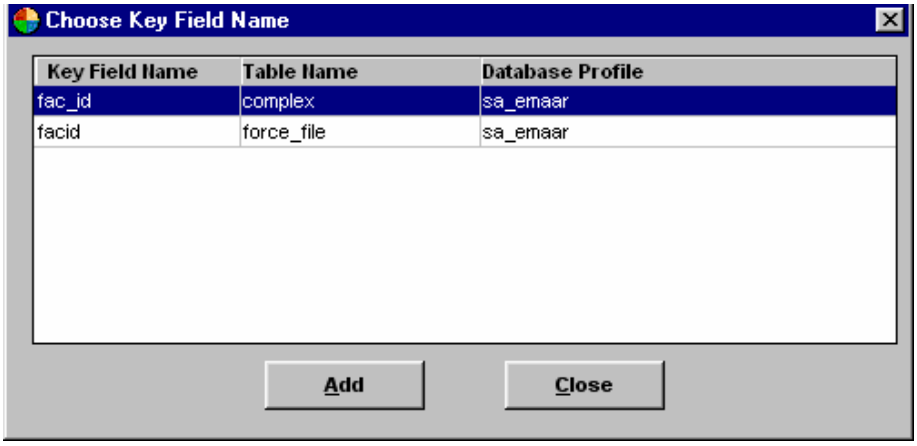
To add a new relationship to the *Relationship Table*:

1. Select ***Relationship Table*** from the *Reference Table* list box.

2. Click the ***New Relationship*** button. The *New Relationship Warning* message appears as displayed below.

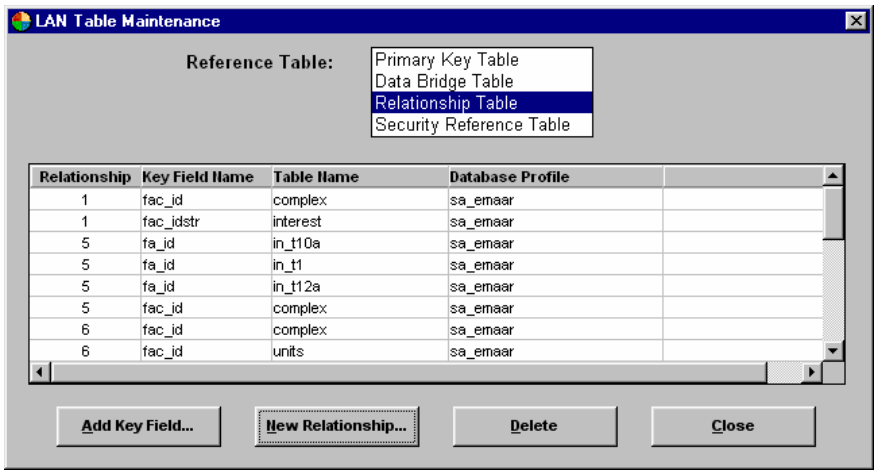

New Relationship Warning
Relationships must include at least two key fields that contain the same information.
OK
Cancel

3. Click the ***OK***. The *Choose Key Field Name* dialog appears. This dialog contains the key fields registered in the *Primary Key table*.



4. Highlight a key field and click the ***Add*** button or double-click on a key field. Add as many key fields to the relationship as desired.

5. Click the ***Close*** button to return to the *Table Maintenance* window. The *Table Maintenance* dialog appears displaying the new relationship.



6. Click ***Close*** on the ***Table Maintenance*** dialog.

Creating a Query from Tables in a Relationship

When tables joined by a common field are in a relationship, they can be queried as if they were one table.

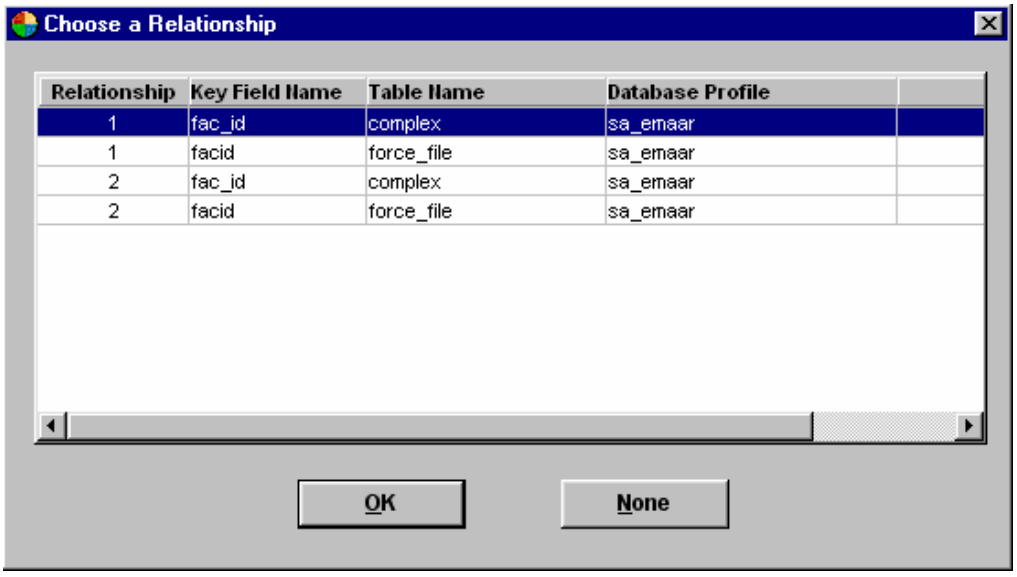
To build a query from tables in a relationship:

1. Select the ***New*** option from the ***Query*** menu, or click on the

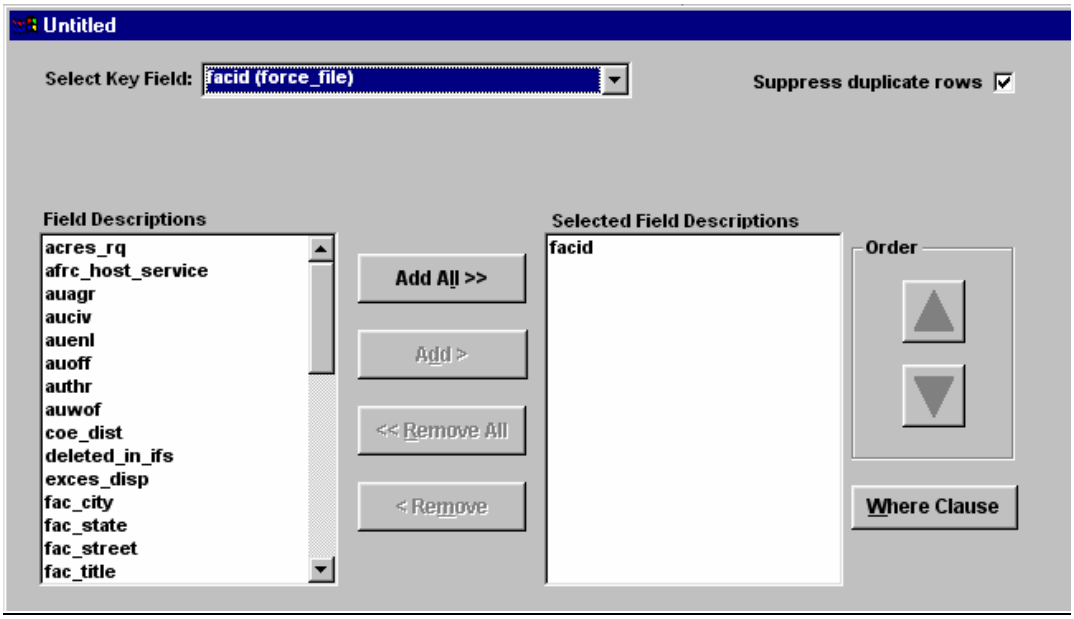
toolbar button.
2. From the Untitled query window, select a key field from the drop down box that is in a relationship. The ***Relationship Found*** message dialog appears.

Relationship Found
There is a relationship in the Relationship table for key field 'facid'.
Do you want to set the relationship between the tables? Choosing 'No' will display all fields registered for the selected key field.
Yes
No

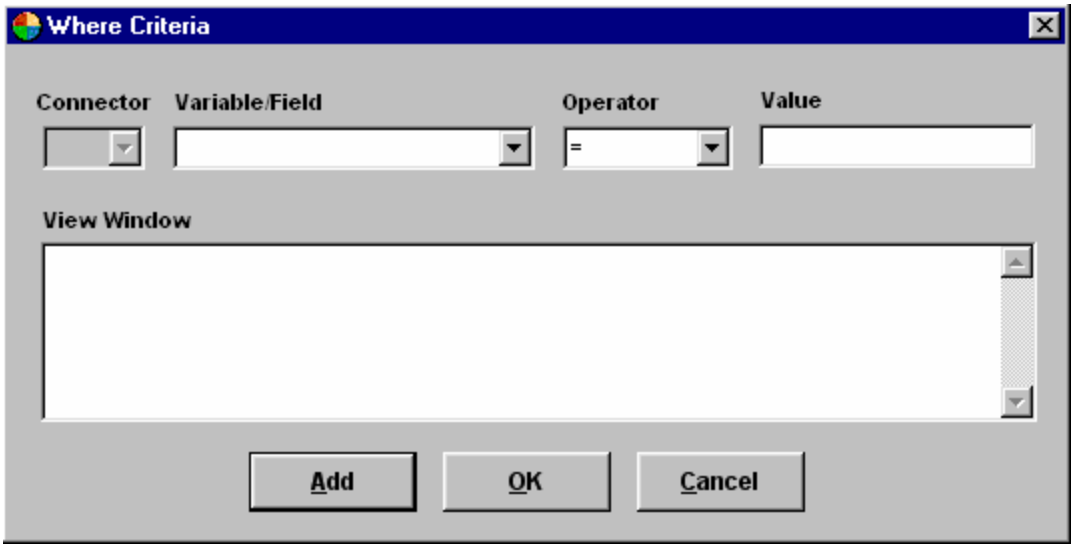
3. To query from all of the fields in each table in the relationship, the relationship must be set. Click ***Yes***.
4. The *Choose a Relationship* dialog appears. Highlight one of the fields in the relationship you wish to set, and click ***OK***.



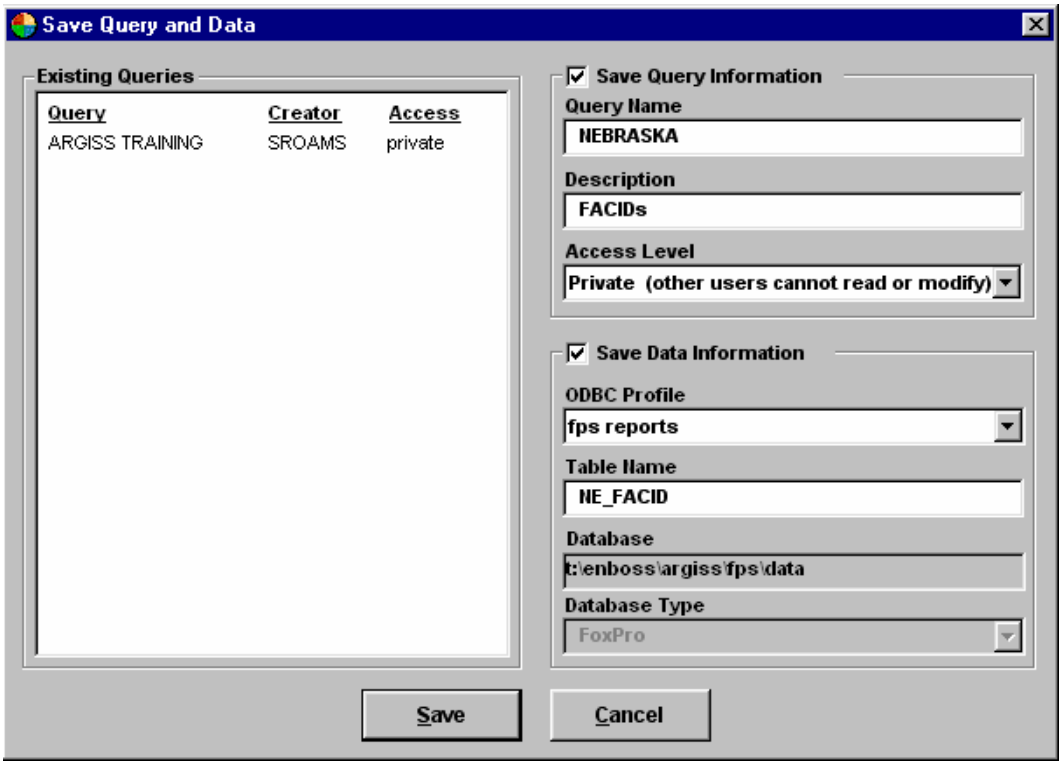
5. All of the fields from the tables that are in the relationship that you chose are now available to query. Select those that you wish to query, and order them so that the columns in the result will be displayed logically.



6. Build a ***Where Clause***.

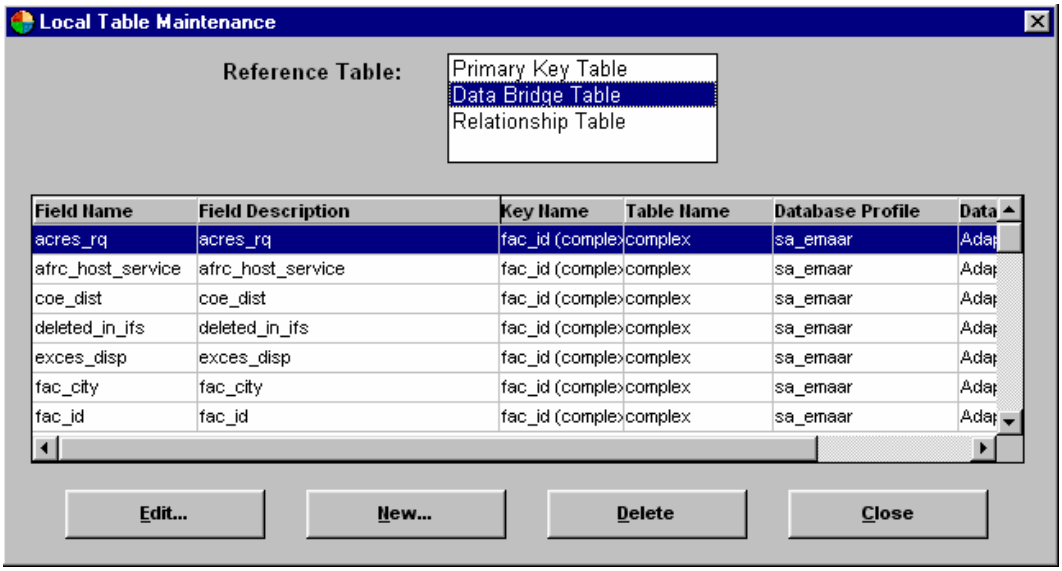


7. Run the query, and save the results.


Save Query and Data
Existing Queries
Query
Creator
Access
ARGISS TRAINING
SROAMS
private
Save Query Information
Query Name
NEBRASKA
Description
FACIDs
Access Level
Private (other users cannot read or modify)
Save Data Information
ODBC Profile
fps reports
Table Name
NE_FACID
Database
t:\enboss\argiss\fps\data
Database Type
FoxPro
Save
Cancel

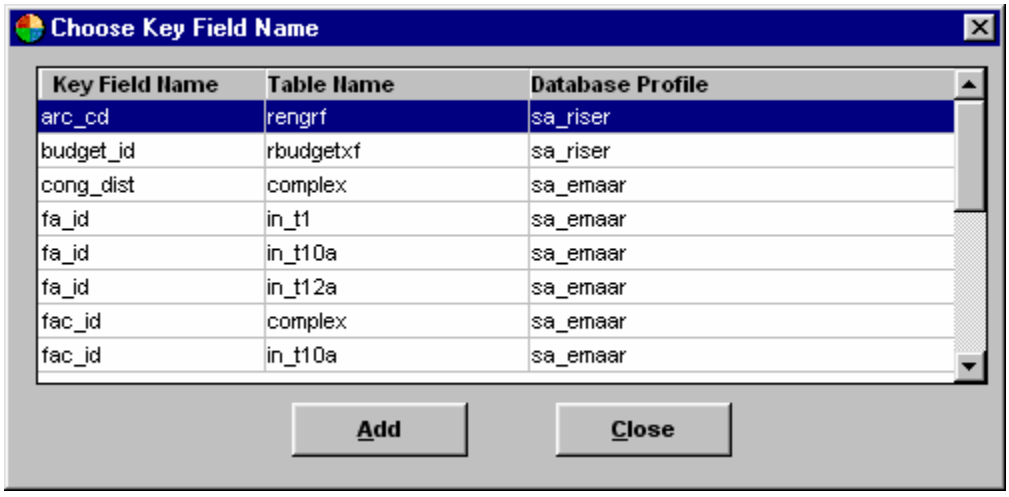
Creating Multiple Relationships

It is possible to have a key field in more than one relationship. Before building such a relationship, make sure all of the necessary fields are registered in the *Primary Key* and *Data Bridge* tables.



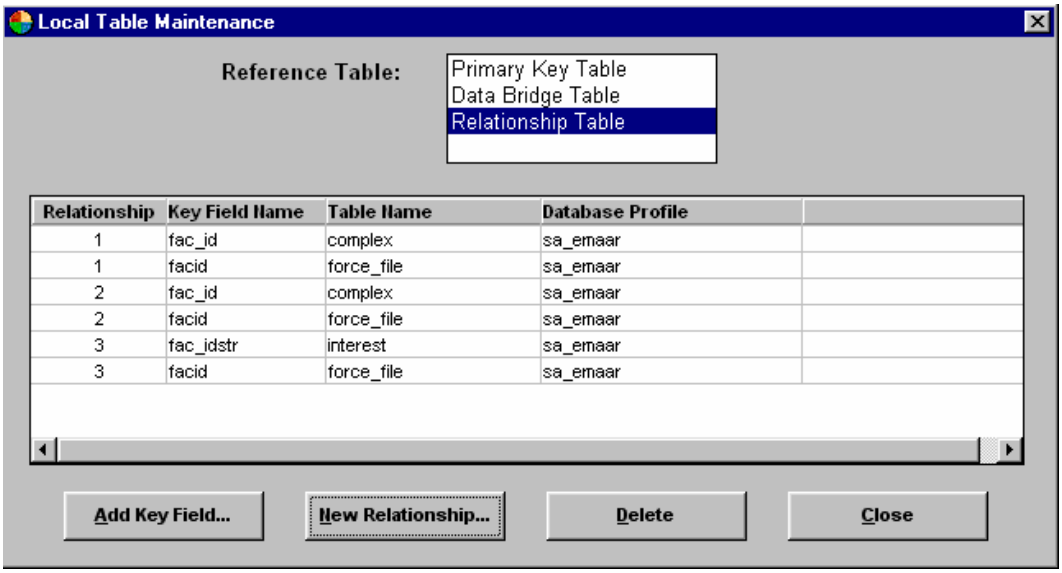
To build a new relationship:

1. Select ***Relationship Table*** from the ***Reference Table*** list box. At this point, you can add fields from different tables to the existing relationship, or create a new one.
2. Click the ***New Relationship*** button, and click ***OK*** on the warning message dialog.
3. Highlight the first key field that you wish to relate and click ***Add***.

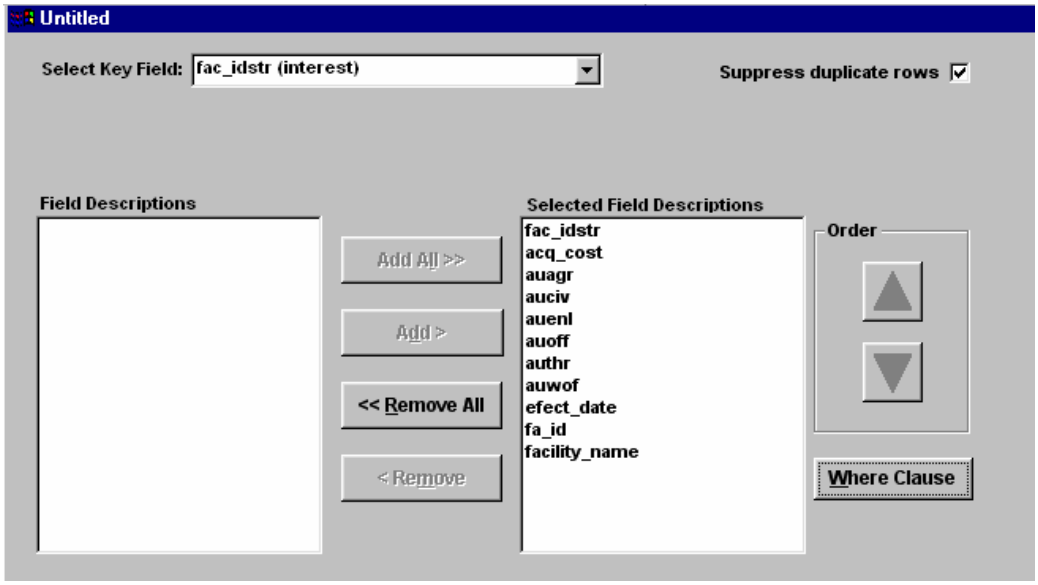


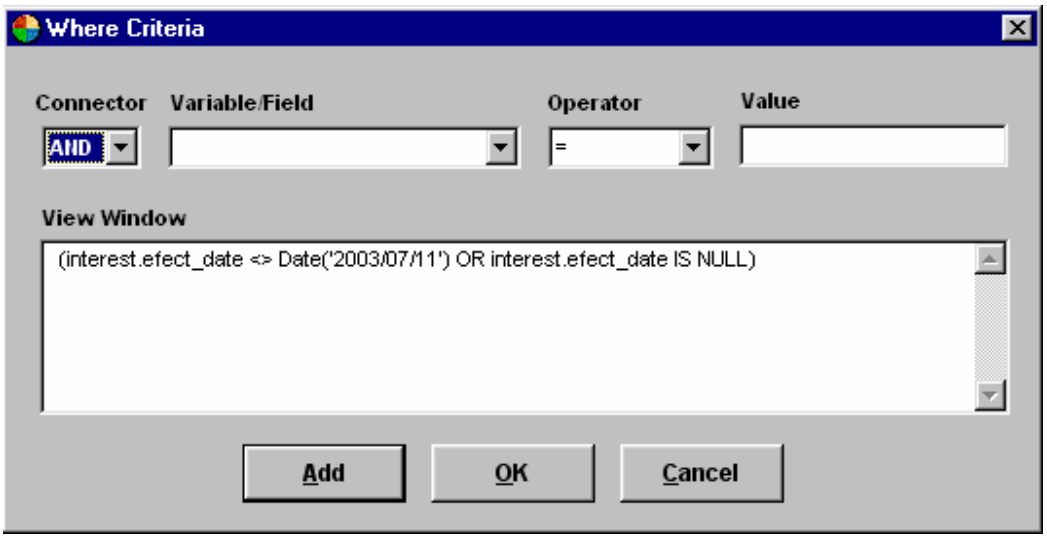
4. Add any other keys you wish to be in the relationship, and close the ***Choose Key Field Name*** dialog. There should now be two relationships in the ***Relationship Table*** as shown below.

5. Select **Close** in the LAN Table Maintenance dialog.

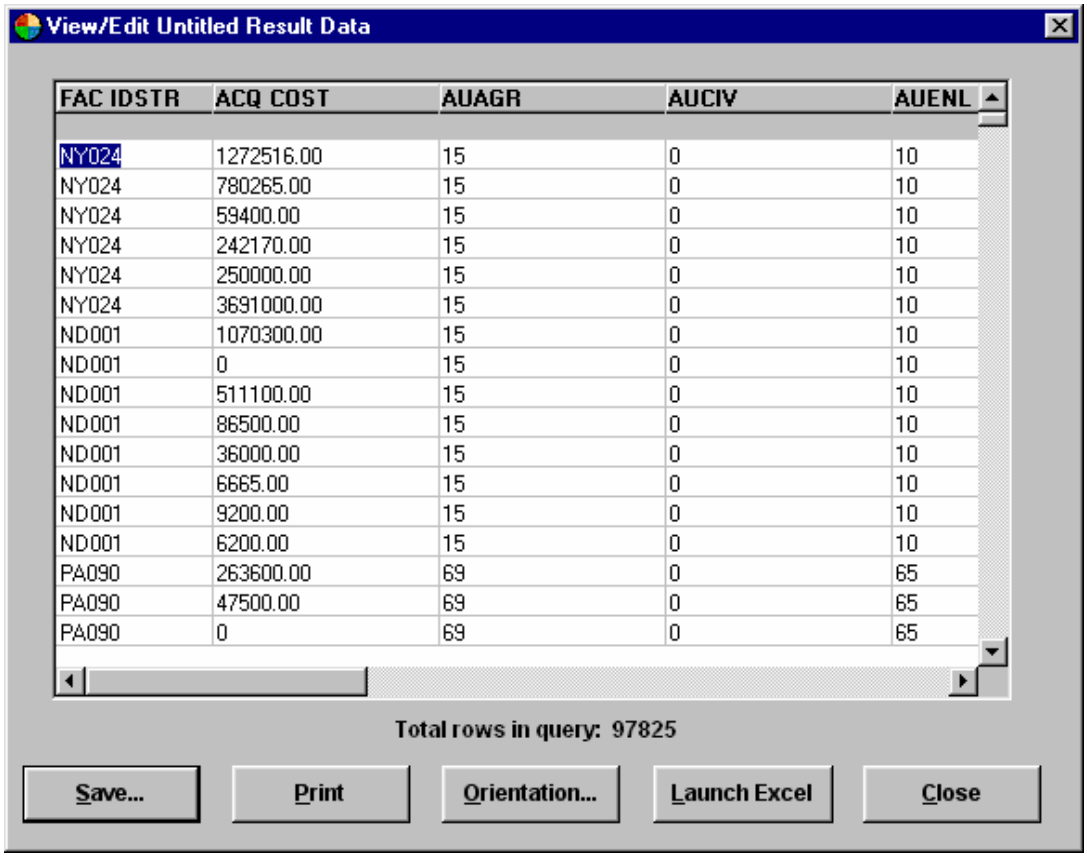


6. Build a new query with the tables in the second relationship and add a ***Where Clause***.

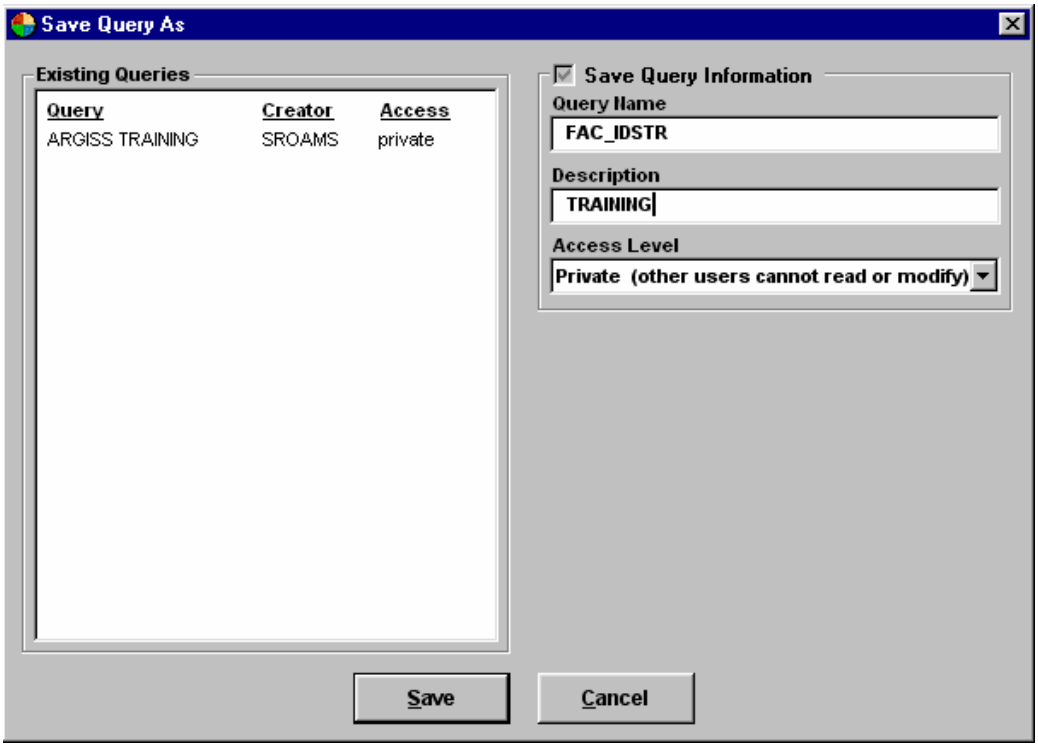




7. Run the query.



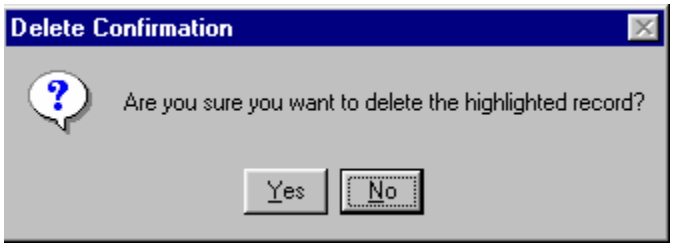
8. Save the results.


Save Query As
Existing Queries
Query
Creator
Access
ARGISS TRAINING
SROAMS
private
Save Query Information
Query Name
FAC_IDSTR
Description
TRAINING
Access Level
Private (other users cannot read or modify)
Save
Cancel

Deleting a Primary Key

To delete a key field from the *Primary Key* table,

1. Highlight the key field in the *Primary Key* table and click the ***Delete*** button. A confirmation dialog displays:



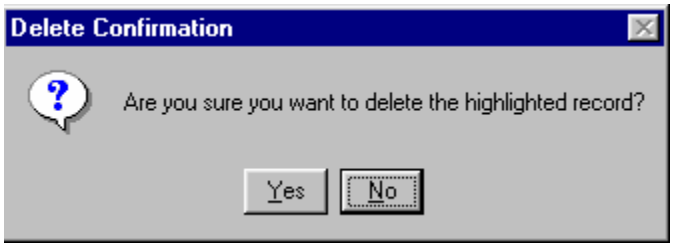
2. Click ***Yes*** to delete the record, or ***No*** to return to the *Table Maintenance* dialog.

Deleting a Relationship

ENSURE YOU ARE ON THE LOCAL DATA SOURCE BEFORE ADDING OR DELETING KEYS, FIELDS OR TABLES.

To delete a record from the Relationship table,

1. Highlight a record in the desired relationship, while the ***Relationship Table*** is active.
2. Click the ***Delete*** button. A confirmation message dialog appears, as shown below.



3. Click the ***Yes*** button to delete the relationship record, or ***No*** to cancel the deletion.

DELETE PRIMARY KEYS BEFORE MOVING ON TO THE DATA BRIDGE SECTION.

Data Bridge Wizard

The purpose of the *Data Bridge Wizard* is to lead the user through the creation of a query while keeping this process as non-technical as possible. The *Data Bridge Wizard* is used in place of the *Table Maintenance* window for setting up queries.

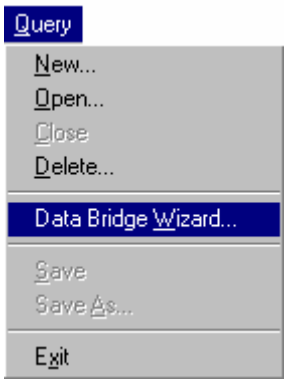
The user first specifies how many databases are to be joined. Then, for each database, the user selects which system database to include. If the selected database is not of a system known to ARGISS, the database type and location must be specified. Tables are then selected from the database and fields selected from each table. Finally, key fields to join the tables are selected. Upon completing the Wizard, the appropriate *Data Bridge Reference Tables* are populated. A new query can be automatically populated using the information entered in the Wizard.

Before using the *Data Bridge Wizard*, be sure that any primary keys that will be used are not already registered in the *Primary Key Table – OTHERWISE DATA BRIDGE WIZARD WILL NOT RUN.* Since we know not to delete Primary Keys located on the LAN, it is always best to use Wizard when connected locally.

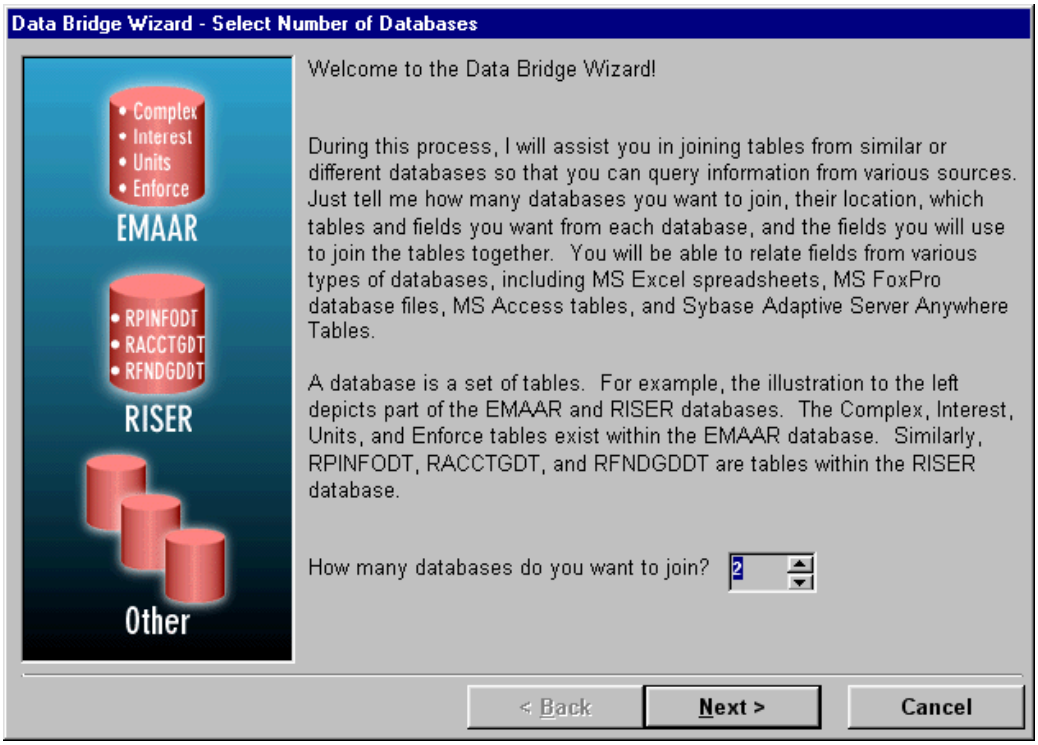
To start the *Data Bridge Wizard:*

1. Select the ***Data Bridge Wizard*** option from the ***Query*** menu, or click on the

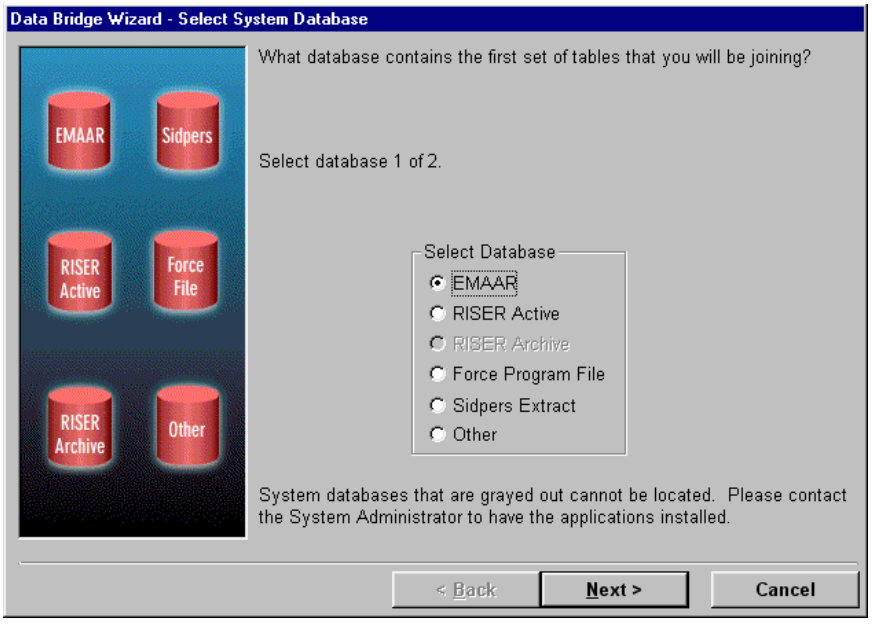
toolbar button.



2. Select the number of databases to join. A maximum of six databases can be included in the join.

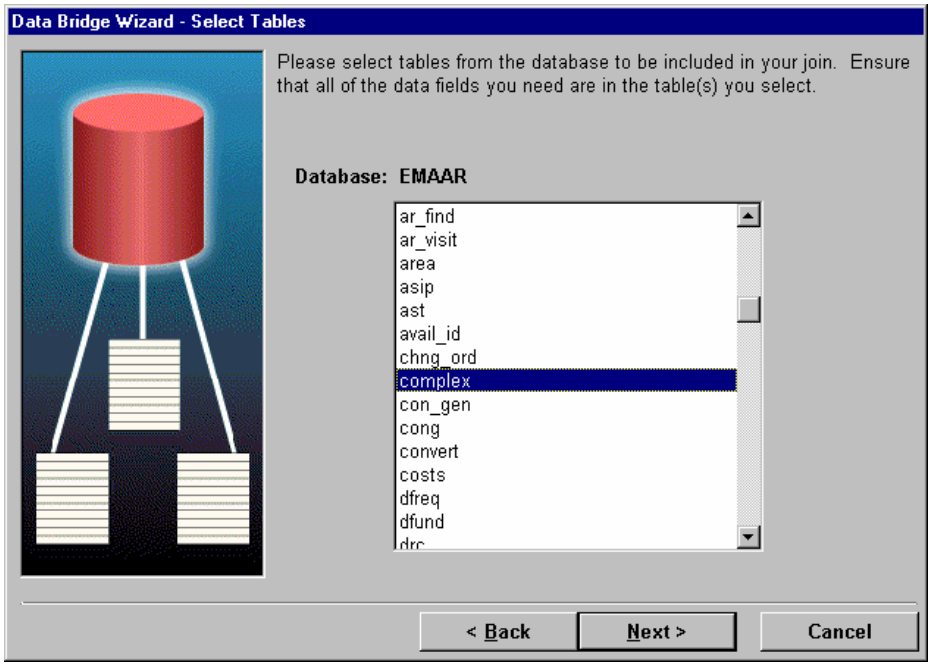

Data Bridge Wizard - Select Number of Databases
• Complex
• Interest
• Units
• Enforce
EMAAR
• RPINFODT
• RACCTGDT
• RFNDGDDT
RISER
Other
Welcome to the Data Bridge Wizard!
During this process, I will assist you in joining tables from similar or different databases so that you can query information from various sources. Just tell me how many databases you want to join, their location, which tables and fields you want from each database, and the fields you will use to join the tables together. You will be able to relate fields from various types of databases, including MS Excel spreadsheets, MS FoxPro database files, MS Access tables, and Sybase Adaptive Server Anywhere Tables.
A database is a set of tables. For example, the illustration to the left depicts part of the EMAAR and RISER databases. The Complex, Interest, Units, and Enforce tables exist within the EMAAR database. Similarly, RPINFODT, RACCTGDT, and RFNDGDDT are tables within the RISER database.
How many databases do you want to join?
2
< Back
Next >
Cancel

3. Click the ***Next*** button. The *Select System Database* dialog appears.

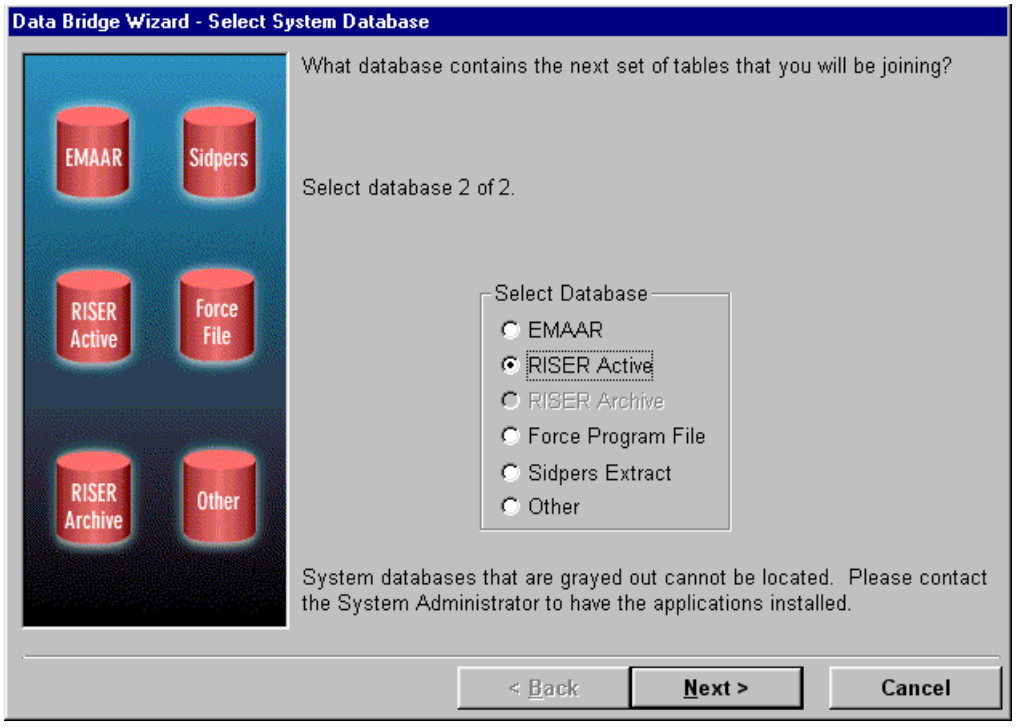


4. Click one of the radio buttons on the list of system databases known to ARGISS or select the *Other* radio button. If the *Other* system database is selected, the user will be prompted to select a database type and location of the table.
5. Click the ***Next*** button. The *Select Tables* dialog appears.

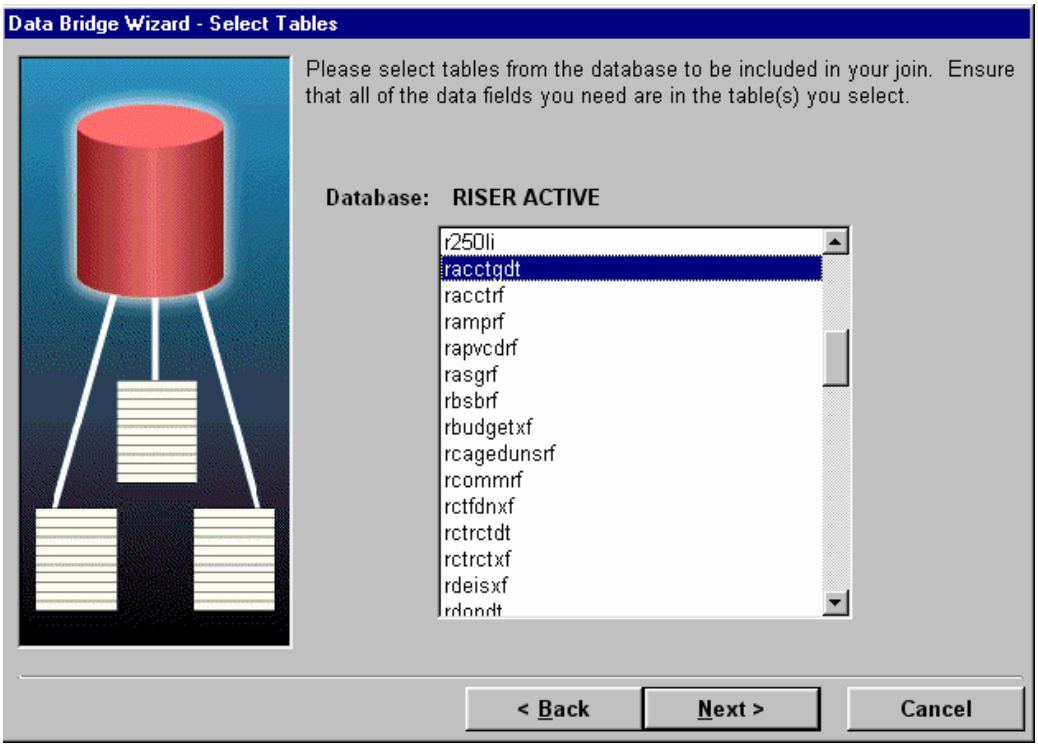
6. Select table(s) from that data source you wish to include in the join. The total number of tables selected for all of the databases cannot exceed 6.



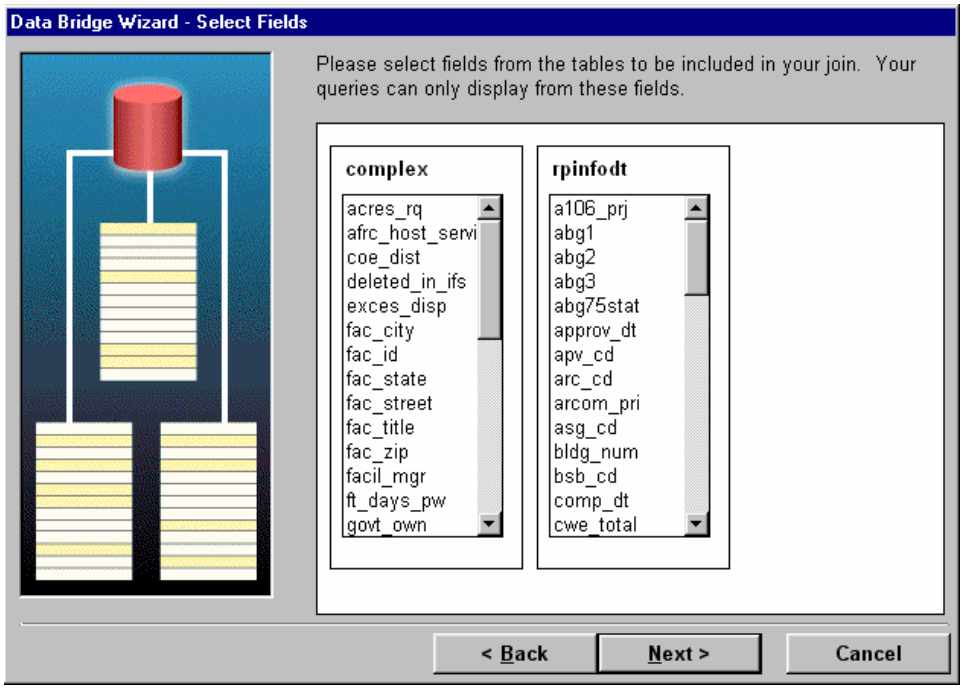
7. Click the ***Next*** button. If there are more databases to be included in the join, the *Select System Database* dialog reappears.



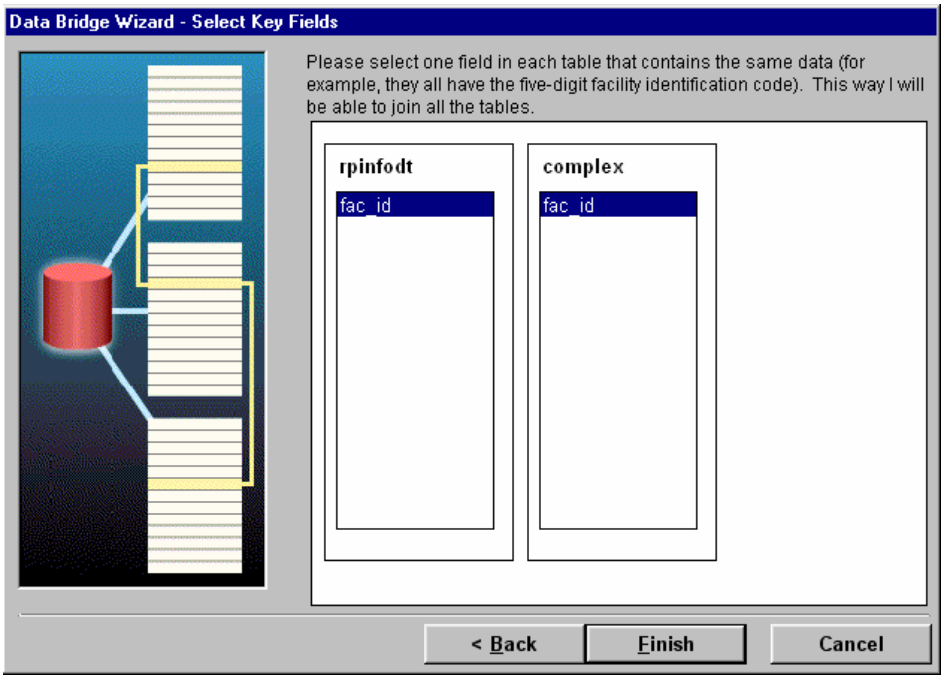
8. Continue to select databases and tables until all of the desired tables are chosen.



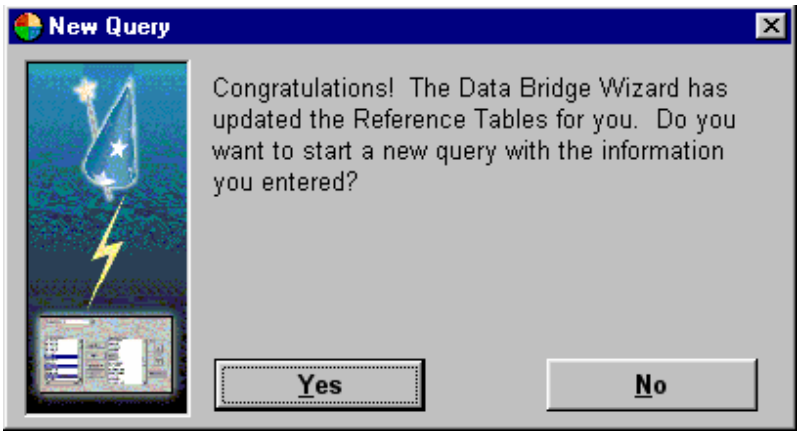
9. Click the ***Next*** button. The ***Select Fields*** dialog appears.
10. Hold down the ***Control*** button on the keyboard and select all of the fields that you wish to query from in each table. Be sure that there is at least one field selected that contains the same information in each table (e.g. fac_id).



11. Click the ***Next*** button. The *Select Key Fields* dialog displays showing all of the fields available for query. Select a key field that contains the same information in each table.


Data Bridge Wizard - Select Key Fields
Please select one field in each table that contains the same data (for example, they all have the five-digit facility identification code). This way I will be able to join all the tables.
rpinfodt
fac_id
complex
fac_id
< Back
Finish
Cancel

12. Click the ***Finish*** button. When the *Data Bridge* has finished automatically updating the *Reference Tables*, the *New Query* dialog displays.


New Query
Congratulations! The Data Bridge Wizard has updated the Reference Tables for you. Do you want to start a new query with the information you entered?
Yes
No

13. Click ***Yes*** to build a new query, or ***No*** to close the dialog.

Exiting Data Bridge

To exit Data Bridge, select the ***Exit*** option from the ***Query*** menu, or click on the

toolbar button.

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Section III

Facility Planning System (FPS)

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Objective

The major objective of this section is to familiarize the student with the *Facility Planning System*. It is expected that every student will be able to utilize the full functionality of *FPS*. The student is also expected to be able to utilize other sections to enhance the functionality of *FPS*. Some of the major objectives include the following:

- Accessing *FPS*
- Updating *FPS*
- Selecting a Search Criteria
- Mapping a Facility
- Viewing Canned Reports
- Mapping Canned Reports
- Creating Ad Hoc Reports
- Mapping Ad Hoc Reports
- Accessing PlanView

Accessing FPS

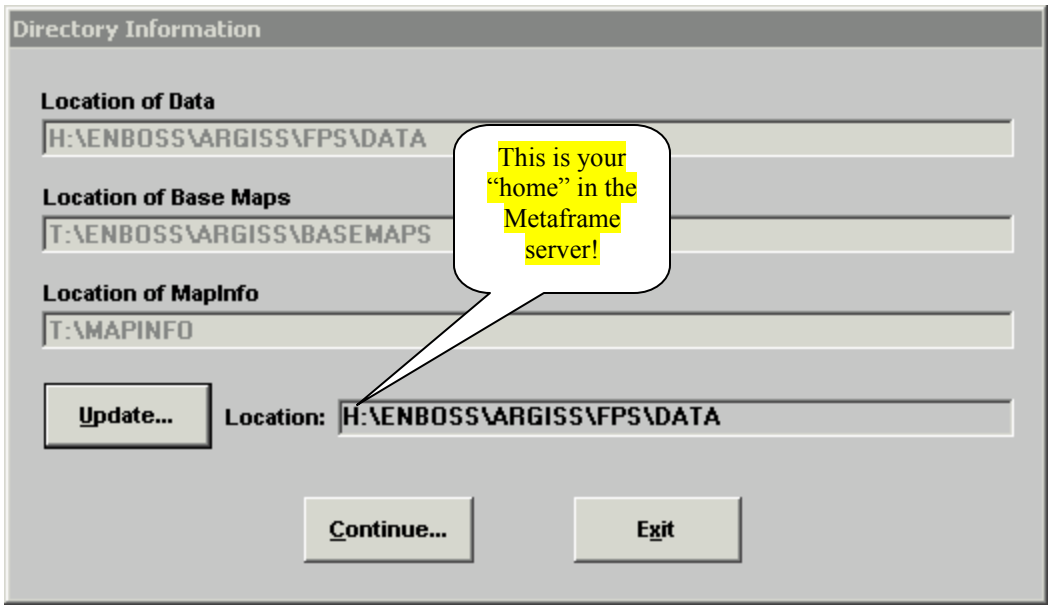
From the ENBOSS Navigator, select

to open the ARGISS Application Group, and then select FPS

Directory Information Dialog

The directory information dialog contains the following:

- Location of Data - directory path of the *Facility Planning System* data used for facility mapping and reporting
- Location of Basemaps - directory path of ARGISS basemap tables used to create maps
- Location of *MapInfo* - directory path of *MapInfo*



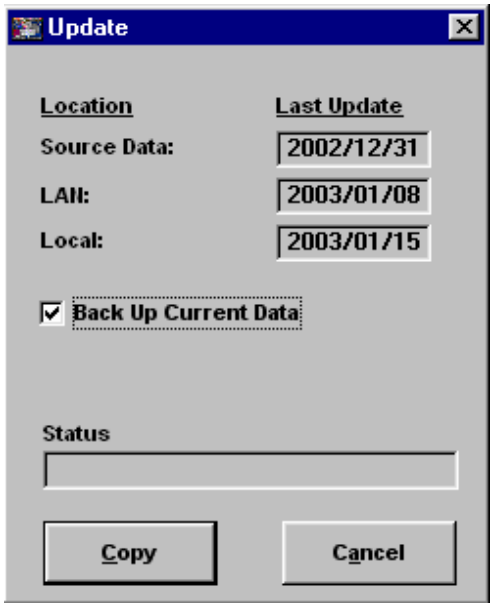
The location of these files can be changed by clicking in the field you want to change and entering a new path.

Updating FPS Data

The *Update* window displays the last date the *FPS* application data was updated on the LAN and on the user's hard drive (Local). If the *LAN FPS* data has been updated more recently than the *Local FPS* data, then the *Local* drive needs to be updated.

To update *FPS* data:

1. Click the ***Update*** button from the *Directory Information* window. The *Update* dialog will appear.



2. Check the *Back Up Current Data* check box if you wish to back up your current data to the your individual MetaFrame path: H:\ENBOSS\ARGISS\FPS\DATA directory.
3. Click the ***Copy*** button.

The system will copy the most recent geocoded data from the *LAN* to the user's local drive. As files are copied, a status bar displays the percentage complete. After the local drive has been updated, the *Local* date field will reflect the new current date. The *LAN* date field changes when the System Administrator runs the Create Application Data Process to update the LAN data.

After the data has been updated from the LAN and the file locations are correct, click ***Continue*** from the *Directory Information* window.

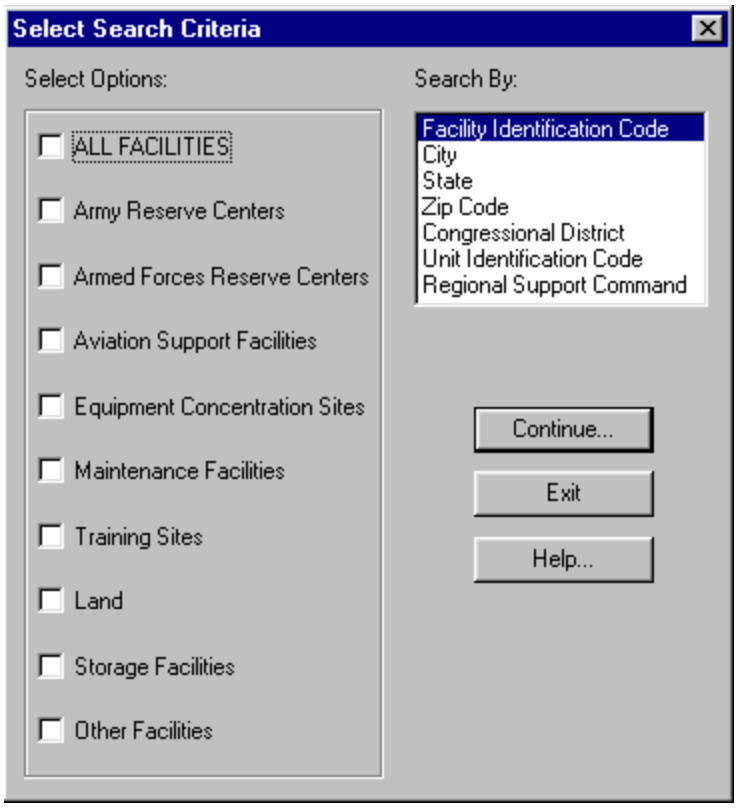
Select Search Criteria Window

The *Select Search Criteria w*indow allows the user to select different types of functional activities and various geographical areas. The *Select Search Criteria* window allows the user to select the following functional activities:

- All Facilities
- Army Reserve Centers
- Armed Forces Reserve Centers
- Aviation Support Centers
- Equipment Concentration Sites
- Maintenance Sites
- Training Sites
- Land
- Storage Facilities
- Other Facilities

You can also specify the geographic area to search. The available search by criteria is:

- Facility Identification Code
- City
- State
- Zip Code
- Congressional District
- Unit Identification Code
- Regional Support Command



For the facility identification code, city, zip code and unit identification code criteria, a buffer can be specified.

To search functional activities by a geographic area:

1. Select one of the *Options* check boxes. All Facilities will search for all of the functional activities in the list below it.
2. Select a ***Search By*** criteria.
3. Click ***Continue***.

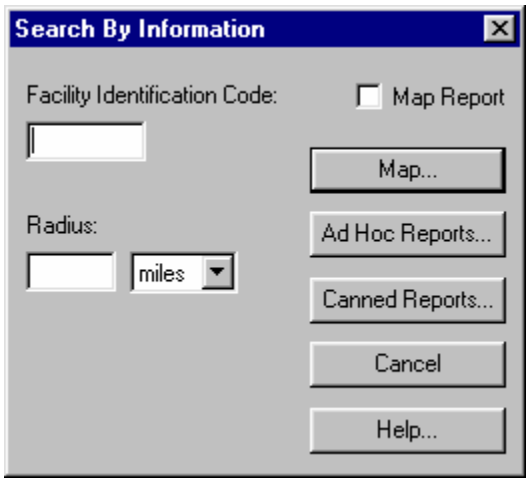
Search By Information Window

The *Search By Information* window will appear. This window allows you to specify the search criteria and select the next step to process the search criteria. The *Search By Information* window allows you choose the following outputs:

- **Map** - maps the results of the search criteria in *MapInfo*
- **Ad Hoc Reports** - develops or generates customized reports in *InfoMaker* based on the criteria selected
- **Canned Reports** - generates pre-existing reports in *InfoMaker* based on the criteria selected
- **Cancel** - returns to the *Select Search Criteria* screen

Search By Facility Identification Code

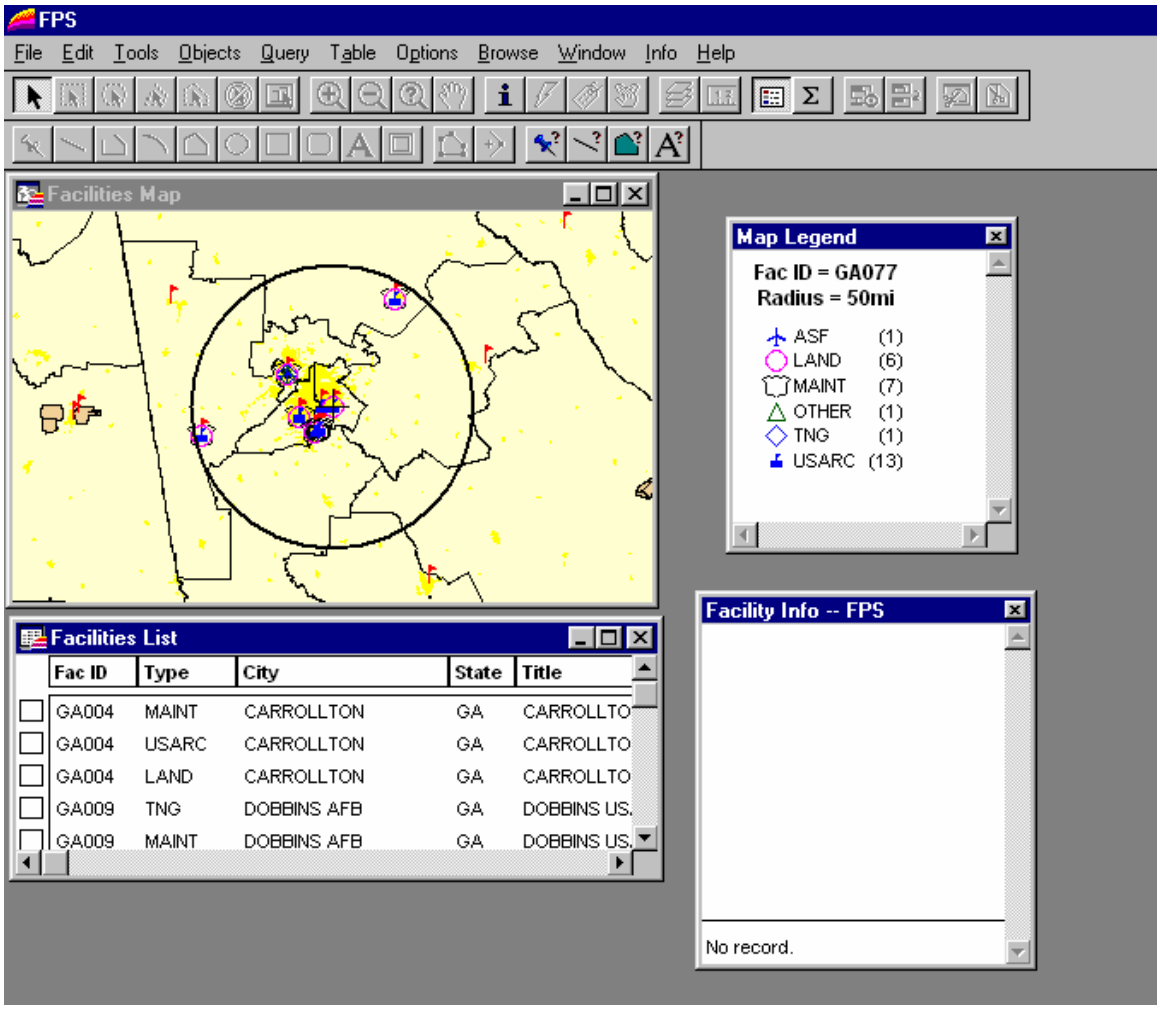
1. Enter a Facility Identification Code in the *Facility Identification Code* box.
2. Enter a buffer radius in the *Radius* box.
3. Select *Miles* or *Kilometers* from the drop down box to select the search radius units.
4. Click ***Map*** to create a map. A map of the search criteria will be automatically created.



FPS Main Window

The *FPS MapInfo Professional* window provides the user all of *MapInfo*'s functionality as well as additional *FPS* specific features used in mapping the search criteria. The *FPS Main w*indow contains four windows:

- **Facilities Map** - A map of the search criteria
- **Facilities List** - A *Browser* window containing the results of the search criteria
- **Facility Info** - An info tool display window
- **Map Legend** - A *FPS* map legend



Info Menu

The *Info* menu contains the following information:

- Change Info - Allows the user to re-specify or change the search criteria
- Data Summary - Displays additional information based on the selection criteria
- Canned Reports - Launches *InfoMaker* with the ability to view and manipulate the canned reports
- Ad Hoc Reports - Launches *InfoMaker* with the ability to create new reports and change existing reports

Change Info

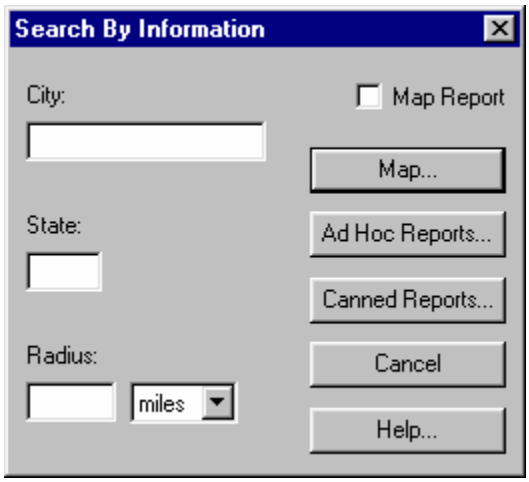
To re-specify or change the search criteria:

1. Click ***Info*** from the menu bar.
2. Select ***Change Info*** from the menu items.
3. The *Select Search Criteria* dialog will appear. Re-specify your search criteria.

4. Click ***Continue***.
5. Enter the search criteria and click ***Map*** to map the results.

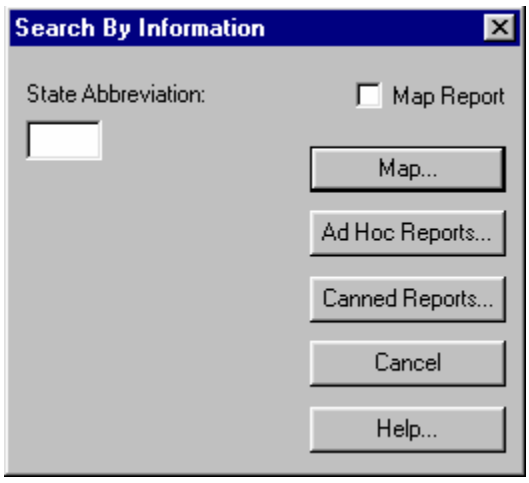
Search By City

1. Enter a city to search by in the *City* box.
2. Enter the state, the city is located in the *State* box.
3. Enter a radius to search by in the *Radius* box.
4. Specify the radius distance units in the drop down box.
5. Click ***Map*** to map the search criteria.



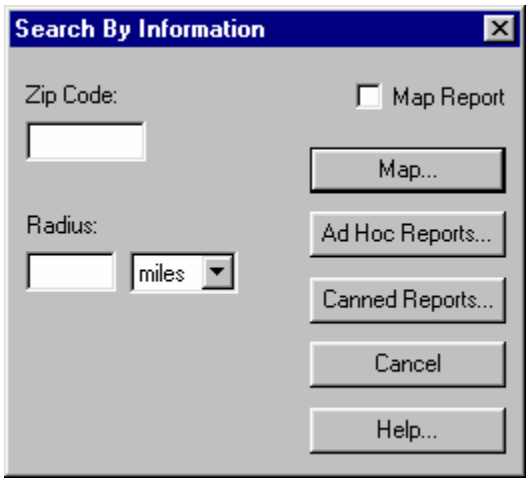
Search By State

1. Enter a state abbreviation in the *State Abbreviation* box.
2. Click the ***Map*** button.



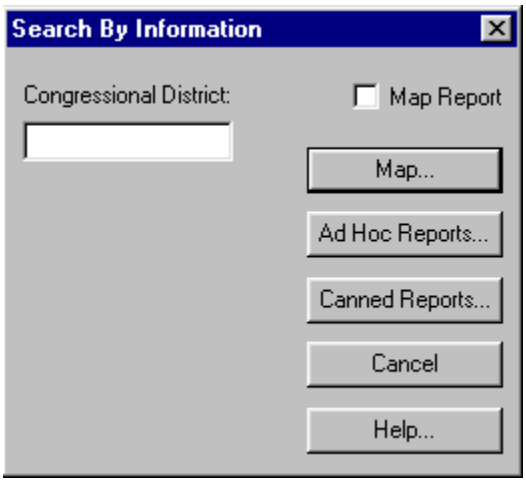
Search By Zip Code

1. Enter a zip code to search by in the *Zip Code* box.
2. Enter a radius to search with in the *Radius* box.
3. Specify the radius distance units in the drop down box.
4. Click the ***Map*** button.



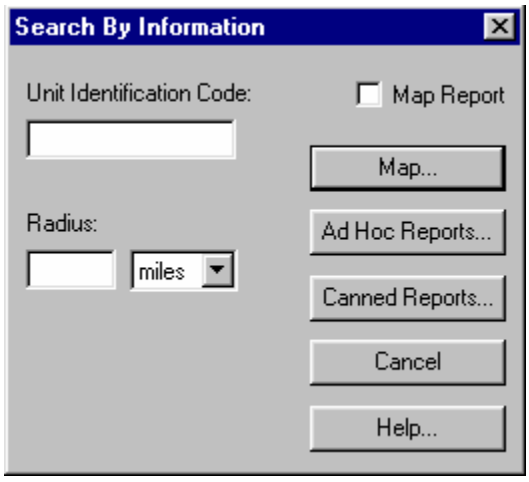
Search By Congressional District

1. Enter a congressional district in the *Congressional District* box.
2. Click the ***Map*** button.



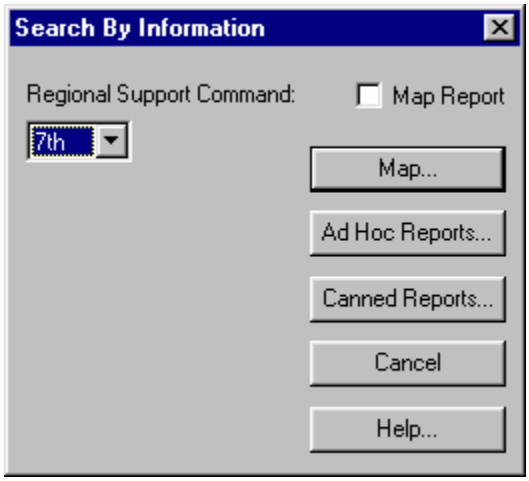
Search By Unit Identification Code

1. Enter a unit identification code in the *Unit Identification Code* box.
2. Enter a radius to search with in the *Radius* box.
3. Specify the radius distance units in the drop down box.
4. Click the ***Map*** button.



Search By RSC *(The RRSC configuration is not supported in ARGISS at this time)*

1. Enter a RSC/ARCOM in the *Regional Support Command* drop down box.
2. Click ***Map***.



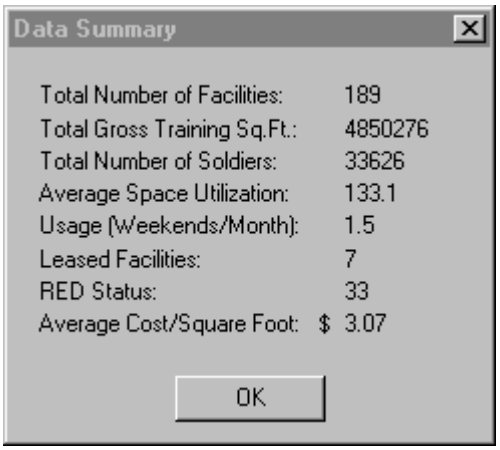
Data Summary

The *Data Summary* window displays the following statistical information about the selected search criteria:

- Total Number of Facilities
- Total Gross Training Sq. Ft.
- Total Number of Soldiers
- Average Space Utilization
- Usage (Weekends/Month)
- Facilities with Leases
- RED Status
- Average Cost/Sq. Ft.

To access the *Data Summary* window:

1. Click ***Info*** from the menu bar.
2. Select ***Data Summary*** from the menu items.



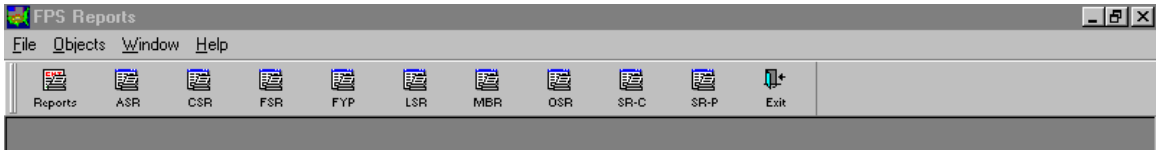
3. The *Data Summary* dailog will appear with the statistical information about your search criteria.
4. Click ***OK*** to return to *FPS*.

Canned Reports

Canned reports are pre-formatted reports that contain specific facility related information for selected search criteria.

To open the *FPS Reports window:*

1. Click ***Info*** from the menu bar.
2. Select ***Canned Reports*** or press ***F9.***
3. The *FPS Reports* dialog within *InfoMaker* is displayed with the *FPS Reports* shown as buttons along the toolbar.



The Canned Reports can be opened by:

- Using the *File* menu
- Using the *Objects* menu
- Clicking the individual *Canned Report* icon
- Clicking on the *Reports* icon

To view a *Canned Report* through the *File* menu:

1. Click ***File*** from the menu bar.
2. Select ***Open Report.***
3. Select the report you want to view from the *Select Report* dialog.
4. Click ***OK***.

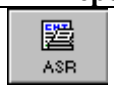
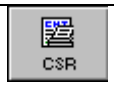
To view a *Canned Report* through the *Objects* menu:

1. Click on the ***Objects*** menu from the menu bar.
2. Click on the report you want to view.

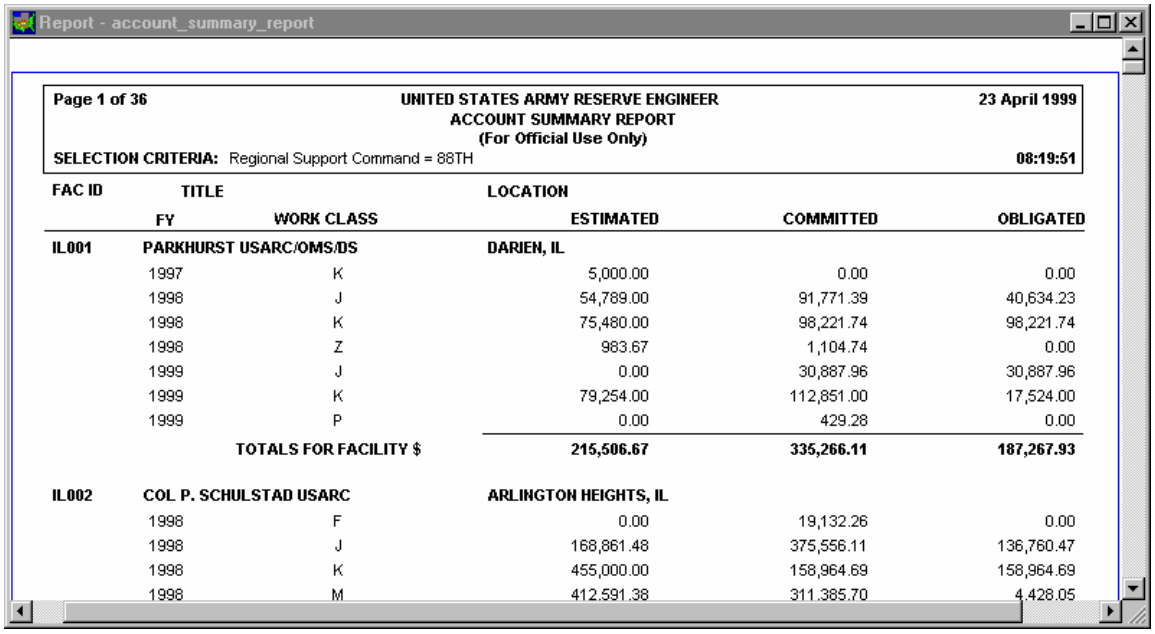
To view a *Canned Report* through the *Report Icon:*

1. Click the ***Reports*** button

from the ***Painter Bar***.
2. Select the report you want to view from the *Select Report* dialog.
3. Click ***OK*** or double click on the report title.

Report Icon	Report Name
ASR 	Account Summary Report
CSR 	Cost Summary Report
FSR	Facility Summary Report
FYP	Future Year Plan
LSR	Lease Report
MBR	Maintenance Backlog by Tier Report
OSR	Obligation Summary Report
SR_C	Stationing Report-Current
SR_P	Stationing Report-Projected

The report formats look something like the one below.



Report - account_summary_report

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ACCOUNT SUMMARY REPORT
(For Official Use Only)
SELECTION CRITERIA: Regional Support Command = 88TH — 08:19:51

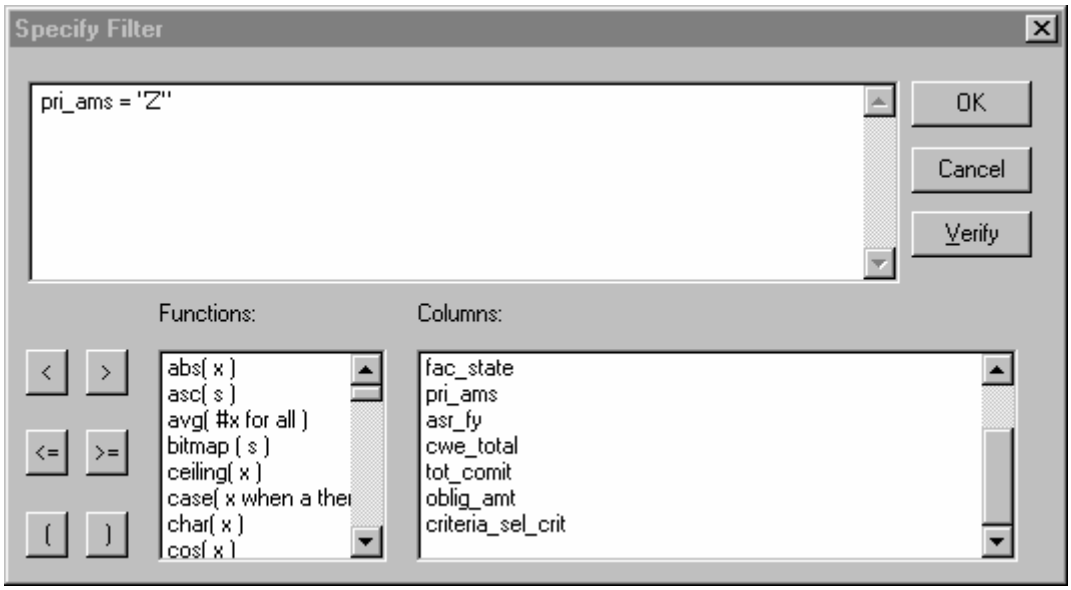
FAC ID	TITLE / LOCATION	FY	WORK CLASS	ESTIMATED	COMMITTED	OBLIGATED
IL001	PARKHURST USARC/OMS/DS		DARIEN, IL			
		1997	K	5,000.00	0.00	0.00
		1998	J	54,789.00	91,771.39	40,634.23
		1998	K	75,480.00	98,221.74	98,221.74
		1998	Z	983.67	1,104.74	0.00
		1999	J	0.00	30,887.96	30,887.96
		1999	K	79,254.00	112,851.00	17,524.00
		1999	P	0.00	429.28	0.00
			TOTALS FOR FACILITY $	215,506.67	335,266.11	187,267.93
IL002	COL P. SCHULSTAD USARC		ARLINGTON HEIGHTS, IL			
		1998	F	0.00	19,132.26	0.00
		1998	J	168,861.48	375,556.11	136,760.47
		1998	K	455,000.00	158,964.69	158,964.69
		1998	M	412,591.38	311,385.70	4,428.05

Filtering Canned Reports

Filtering a report allows the user to extract specific data from the reports by specifying filter criteria.

To filter the report data:

1. Click ***Rows*** from the menu bar.
2. Choose ***Filter***. The *Specify Filter* dialog will appear.



3. Select the column to filter from the *Columns* list box.
4. Specify a function from the *Functions* list box, select an operator button, or type an operator.
5. Enter a value to search for. The example in the window above will filter the ASR Report for all *pri_ams = "Z"*. In other words, the totals for all environmental work orders will be retrieved. Remember, character fields must have double quotes around the value.
6. Click ***Verify***. A message box displays to indicate if the filter function is valid.
7. Click ***OK*** if the filter expression is valid.
8. Click the ***Retrieve*** button on the *FPS Reports* window to refresh the report.

The report will be displayed with only the data that met the filter that you specified.

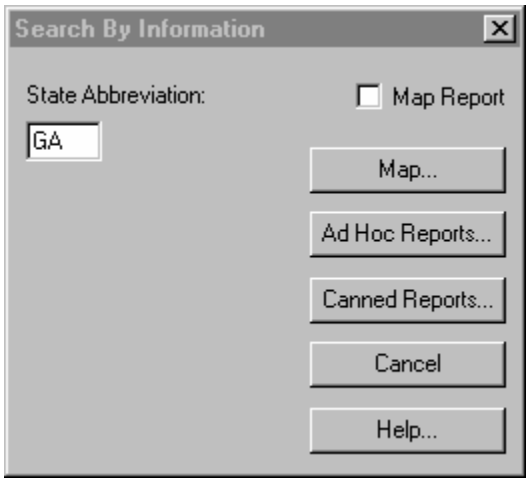
To exit *Canned Reports*:

1. Close the open report by selecting ***File > Close.***
2. Click the ***Exit*** button from the *Painter Bar*.

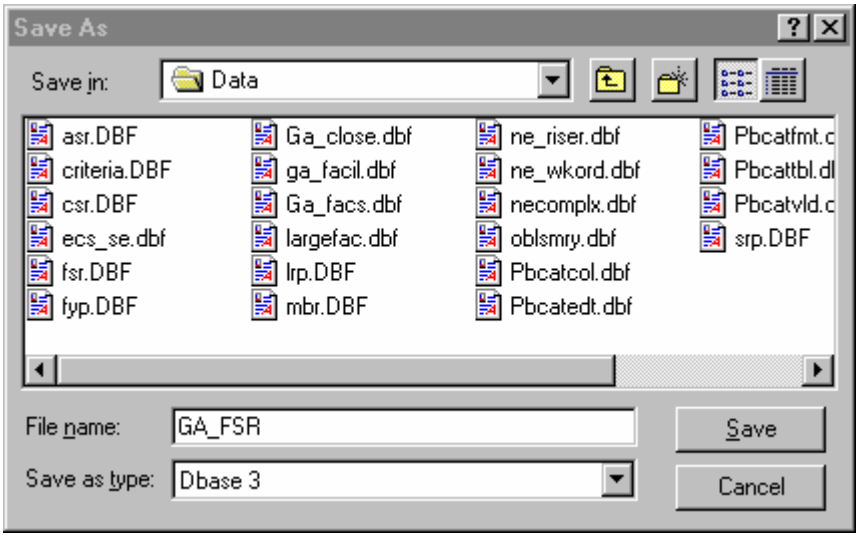
Mapping Canned Reports

To map an existing *Canned Report:*

1. Specify a search criteria to create the *Canned Report*. Remember, to re-specify a search criteria click ***Info*** from the ***FPS MapInfo*** dialog and then select ***Change Info***.
2. Search *All Facilities* by state, and click ***Canned Reports*** from the ***Search By Information*** dialog.

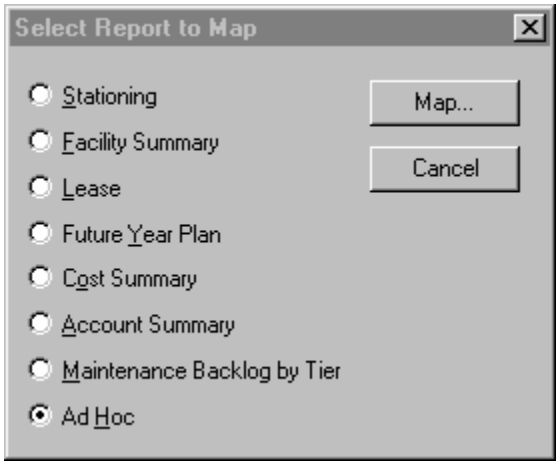


3. The *FPS Reports* dialog will display. Select the report button that you want to map.
4. Filter the report if desired.
5. Select **the *Save Rows As*** option from the File menu. The Save As dialog will appear.

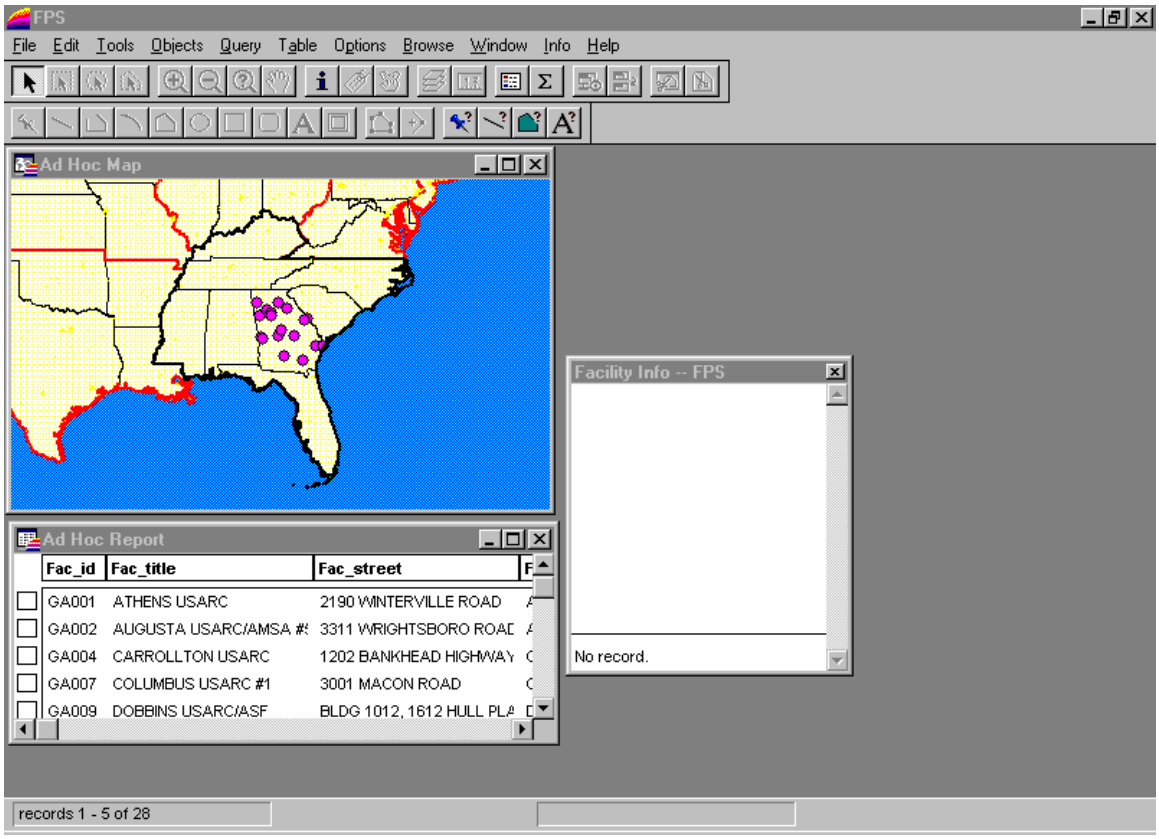


6. Locate the H:\ENBOSS\ARGISS\FPS\DATA directory.
7. From the ***Save File as Type*** drop down box select ***Dbase 3*** so that the table can be mapped by *FPS*.
8. Give the file a name and Click ***Save***.
9. Exit *FPS Reports.*

10. In *FPS,* return to the *Select Search Criteria* dialog. Choose selection criteria that will allow you to map all of the records in your saved .dbf file.
11. In the *Search By Information* dialog, check the ***Map Report*** checkbox and click the ***Map*** button.
12. In the *Select Report to Map* dialog, choose the ***Ad Hoc*** radio button.



13. Click ***Map***.
14. In the H:\ENBOSS\ARGISS\FPS\DATA directory, choose the .dbf file that you saved earlier.
15. Click ***Open***.


FPS
File Edit Tools Objects Query Table Options Browse Window Info Help
Ad Hoc Map
Facility Info -- FPS
No record.
Ad Hoc Report
Fac_id Fac_title Fac_street
GA001 ATHENS USARC 2190 WINTERVILLE ROAD
GA002 AUGUSTA USARC/AMSA #
GA004 CARROLLTON USARC 1202 BANKHEAD HIGHWAY
GA007 COLUMBUS USARC #1 3001 MACON ROAD
GA009 DOBBINS USARC/ASF BLDG 1012, 1612 HULL PLA
records 1 - 5 of 28

A map with magenta circles will appear. This *Ad Hoc* map represents the data that you saved from the *Canned Reports*. Use your *Info* button and click on a magenta dot. The *Facility Info* window will populate with all of the data from the canned report.

Ad Hoc Reports

Ad hoc reports allow users to create reports from scratch or modify copies of *Canned Reports* formats. For instance, the user can create a new report that combines information from several EMAAR tables, or that shows data from a *Data Bridge* query.

Creating Ad Hoc Reports

To create an *Ad Hoc Report*:

1. Select the ***Ad Hoc Reports*** option under the ***Info*** menu. You can also access *Ad Hoc Reports* from the *Search By Information* dialog.
2. An *InfoMaker* session will be launched. Create and modify the report in *InfoMaker*.

Mapping Ad Hoc Reports

To map an ad hoc report:

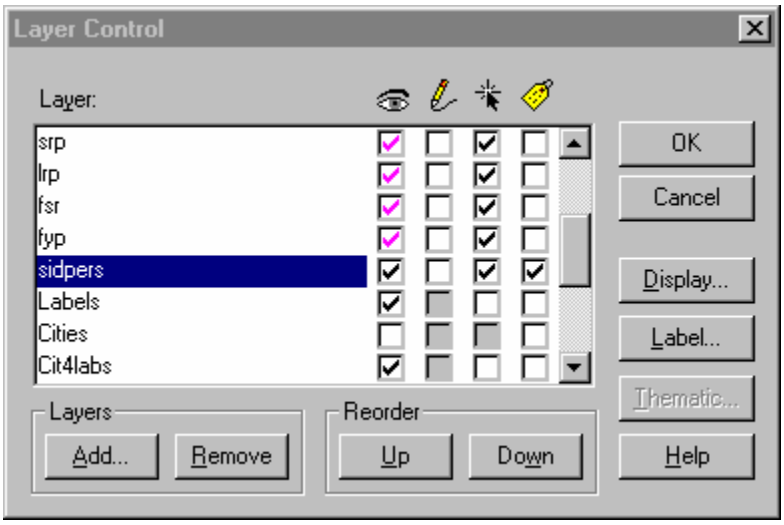
1. Create and save an *Ad Hoc Report* as described above.
2. Follow the same instructions for mapping *Canned Reports,* but use the .dbf file that was saved from the *Ad Hoc* report to create your map.

Group AutoLabeling

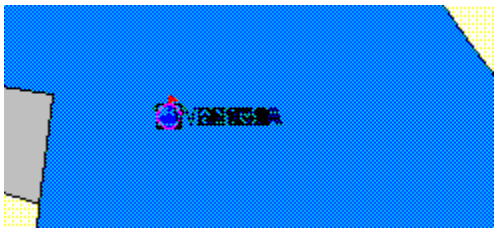
The *Group Autolabel* function realigns multiple labels that exist at a single point on the map. For example, there are usually multiple units assigned to a facility.

To use the *Group Autolabel* function:

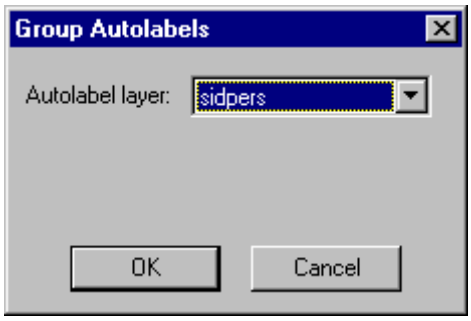
1. In *FPS,* search by *Fac_id*. For this example, we will map **GA009**.
2. When the map of GA009 opens, maximize it so it fills the screen and close the legend.
3. Click the ***Layer Control*** button in the toolbar.
4. Highlight the ***Sidpers*** layer and check the ***AutoLabel*** check box. This will produce multiple unit labels for one facility.



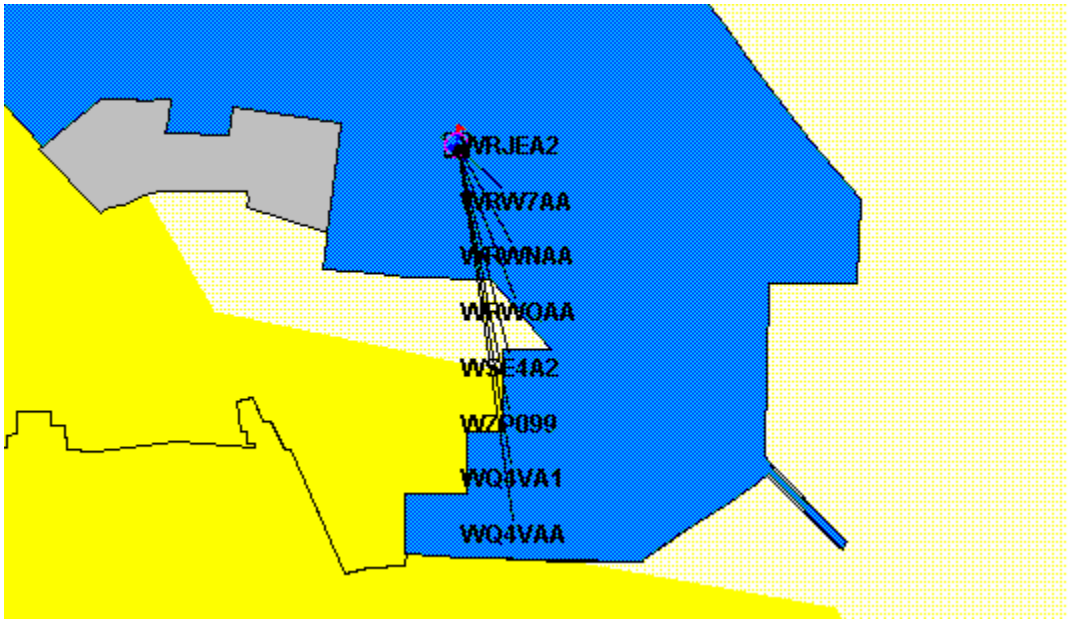
5. Click the ***Label*** button.
6. Label the layer with ***Uic,*** check the ***Allow Overlapping Text*** check box, make the *Text Style Effects* bold, and click ***OK***
7. Click ***OK*** again to display the map with overlapping Uic labels



8. Click on the ***Map*** menu from the menu bar.
9. Select ***Group Autolabels***.
10. Select the ***Autolabel layer*** that you are labeling.

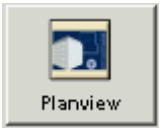


11. Click ***OK***. The labels are now spread out and easier to read.

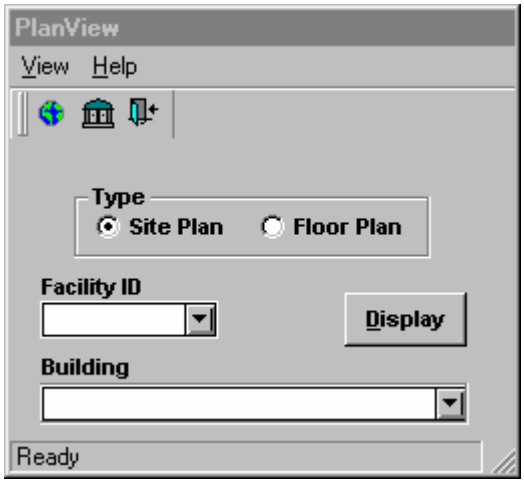


Viewing Site and Floor Plans in ARGISS

PlanView is a separate ARGISS module that displays the site and floor plans of those facilities for which digital plans are registered. *PlanView* can be conveniently launched from within the *FPS* module to view site and floor plans for each facility.

To launch *PlanView*, select 

from the ARGISS Application Group.

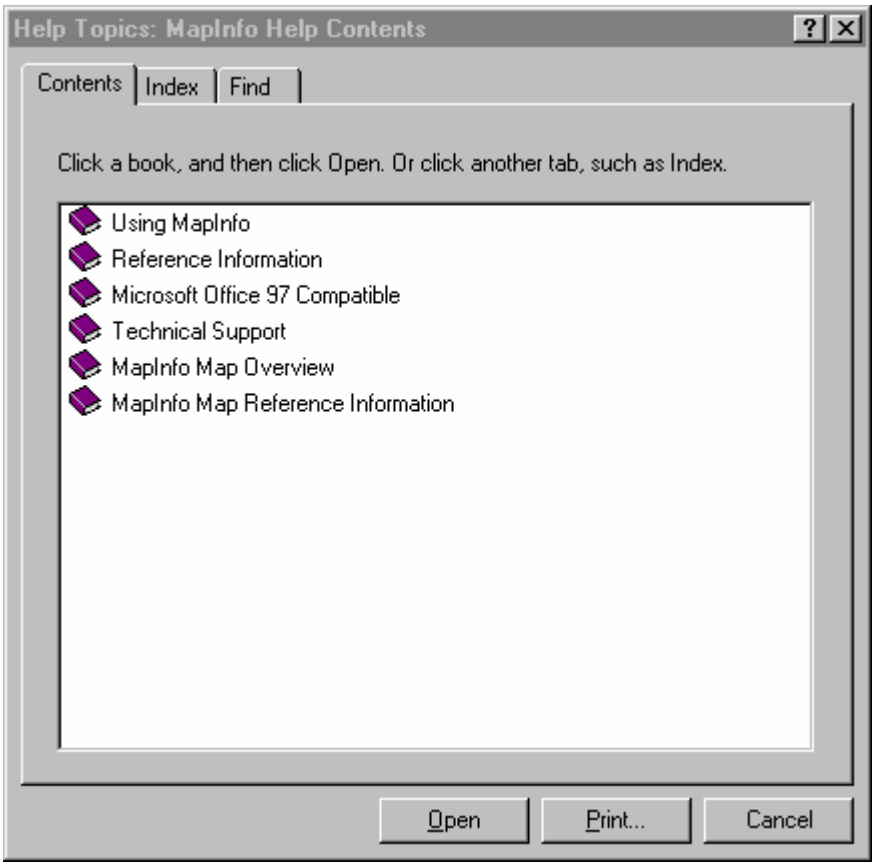


PlanView will be discussed in detail in Section V.

Accessing FPS Help

To access *FPS* help:

1. From the ***Help*** menu, select ***MapInfo Help Topics,*** or select the ***Help*** option from the ***ARGISS*** program group.
2. The following *FPS Help* dialog will appear. This dialog allows the user to view the contents of the on line help or search by a keyword.



3. To search by contents, click on a topic.
4. To search on a keyword, click the ***Search*** tab, and in the keyword that you would like to search on.

Exiting the Facility Planning System

To exit ***FPS****:*

1. Click ***File > Exit MapInfo*** from the menu bar.
2. Click ***OK*** to exit.

FPS Data Management

Objectives

The objectives of the FPS Data Management section is to educate the user on how to maintain and update the data files that FPS needs in order to run the *Create Application Data* process. ARGISS does not create any of its own data. ARGISS only reads from existing databases that the USAR community already maintains. However, the geographical data and the process of refreshing new tables from other directorates are necessary to ensure the data that is read into FPS during the *Create Application Data* process, is current and accurate. This section will cover the following:

- Updating Facility Ids and the Georeference Table
- Refreshing the Force Program File
- Refreshing the SIDPERS Table
- Updating the FPS Table
- Running the *Create Application Data Process* for *FPS*.

This is run for you twice a month; on the 1st and 15th!

The Engineer Automation Help Desk runs the *Create Application Data Process* centrally for all users of the *Facility Planning System*. We present the following information so the student understands the process to create the databases that are used by FPS.

Updating Facility Ids and the Georeference Table

The EMAAR and RISER systems are updated at the RRC/RSC. When Facility Ids are added or deleted in EMAAR, those Facility Ids are not automatically added to ARGISS. Since ARGISS is a Geographic Information System (GIS), the Facility Ids need to have X and Y (latitude and longitude) coordinates associated with them so the GIS engine will know where they are located in the map. The X and Y coordinates are stored in a master table called the georeference table (GEOREF.TAB). The Engineer Automation Help Desk maintains the master georeference table and copies it to local folder of each FPS user. The old GEOREF table needs to be overwritten with the new GEOREF tables in the T:\ENBOSS\ARGISS\DATASET directory. The *Create Application Data* process needs to be run for the *Facility Planning* System in the *Data Bridge* for this information to be reflected in the system.

To add a new Facility Id to *FPS* the Engineer Automation Help Desk performs these tasks:

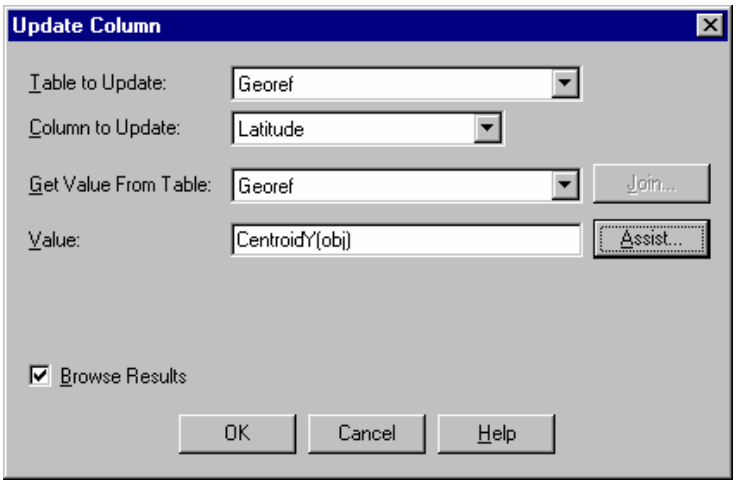
1. Open the **georef** table (T:\ENBOSS\ARGISS\DATASET\GEOREF.TAB) in *MapInfo*. The STATESHR.TAB, USHWY.TAB, etc. located at T:\ENBOSS\ARGISS\BASEMAPS are useful for identifying location in the Earth's surface.
2. Make the GEOREF table editable in *Layer Control*.
3. Open the ***GEOREF*** table in a Browser window.
4. Select ***Edit > New Row*** to add a new row to the GEOREF table.
5. Type in the needed information: Fac_id, Fac_title, Fac_street, Fac_city, Fac_state, Fac_zip, etc.
6. Use the ***Select*** tool to select the empty box to the far left of the new row you just added. The box will fill in when the row is selected.

7. Select the ***map window***, making it your active window and select the ***Symbol*** tool from the Drawing tool palette.
8. Use the ***Symbol*** tool to tell *MapInfo* where the new Facility Id is located. Click the mouse once where you want to locate the facility.
9. Select the ***Select*** tool as soon as you are done locating the facility so you do not accidentally start adding more objects than you want to add.
10. Notice the symbol is highlighted. *MapInfo* added a gray star to indicate the new facility location. The other facilities in the GEOREF table are blue facilities. To change the symbol, select ***Options > Symbol Style*** while the facility is still highlighted.
11. Select the facility symbol and the color blue.
12. The GEOREF table needs to be saved. To save the GEOREF table, select ***File > Save Table***. Select the GEOREF table and click ***Save***.

In order for the new Facility Id to display in *FPS*, the *Create Application Data* process needs to be run. The Engineer Automation Help Desk does this twice a month. The latitude and longitude fields in the GEOREF table are not automatically populated with the X and Y coordinates. *MapInfo* stores the X and Y coordinates for each record internally in something called an object. While in *MapInfo* you can use the object field (obj) to run queries, etc. The following instructions walk you through populating the latitude and longitude fields in the any *table*.

To populate the latitude field:

1. Open the georeference table (T:\ENBOSS\ARGISS\DATASET\GEOREF.TAB) in *MapInfo* if it is not already open.
2. Select ***Table > Update Column***.
3. Select ***table*** as the *Table to Update* field.
4. Select ***latitude*** for the *Column to Update* field.
5. Select ***table*** as the *Get Value From Table* field.
6. Click the ***Assist*** button and select the ***CentroidY*** function as the *Expression*.

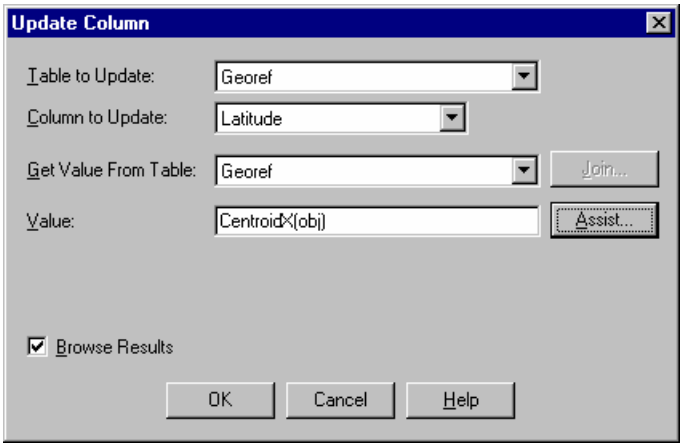


7. Click ***OK***.

The latitude field is now populated with the centroid (center of the map object) of the Y coordinate for the new Facility Id. Do not forget to save the ***table*** table before exiting *MapInfo*.

To populate the longitude field:

1. Select ***Table > Update Column***.
2. Select ***table*** as the *Table to Update* field.
3. Select ***longitude*** for the *Column to Update* field.
4. Select ***table*** as the *Get Value From Table* field.
5. Click the ***Assist*** button and select the ***CentroidX*** function as the ***Expression***.



6. Click ***OK***.

The longitude field is now populated with the centroid (center of the map object) of the X coordinate for the new Facility Id. Do not forget to save the ***table*** table before exiting *MapInfo*.

If you make any changes in address for a FACID; these should be added to the georeference table; please contact the Engineer Automation Help Desk. This is to make sure we have your changes so they do not get overwritten the next time we run the *Create Application Data Process*.

Exiting the Facility Planning System

To exit ***FPS***:

3. Click ***File > Exit MapInfo*** from the menu bar.
4. Click ***OK*** to exit.

Facility Planning System (FPS)

Practical Exercise

Exercise Scenario

The Congressman needs specific reports and maps of the area in Nebraska he and his colleagues are interested in. The *Facility Planning System* automates the process of map creation and report generating. Utilize *FPS* to obtain the maps and reports that the Congressman has requested.

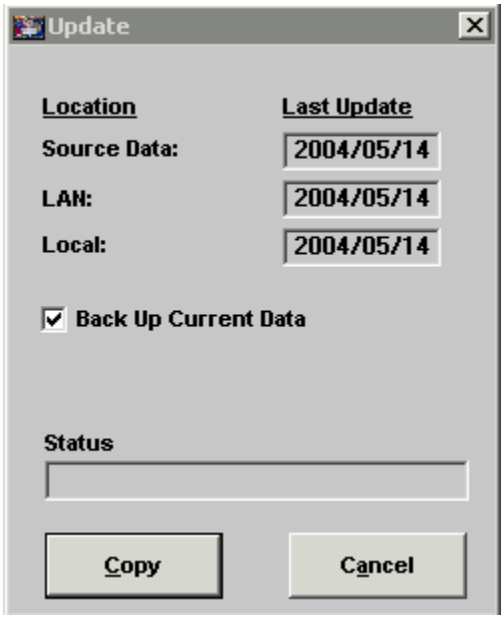
You will utilize *FPS* to:

- Conduct multiple searches by different geographic areas
- Produce the necessary facility and accounting reports requested for the Congressman's presentation
- Produce the necessary maps requested for the Congressman's presentation
- Produce graphs and other information for the Congressman's presentation

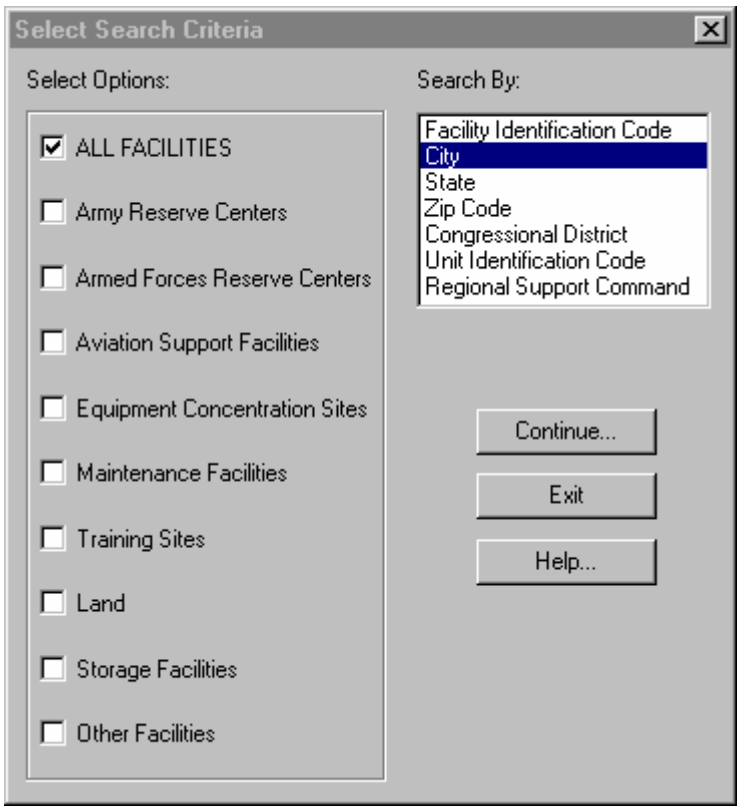
Create a Map of Facilities within a 50 Mile buffer of Omaha, NE

1. Launch *FPS.*

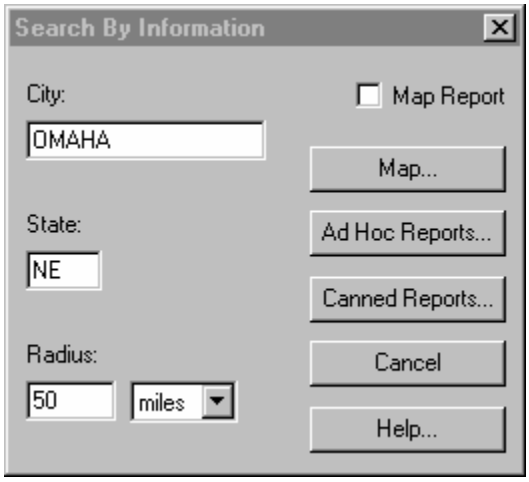
2. Click the ***Update*** button and make sure the *Local* date is more recent than the ***LAN*** date. If it is, click ***Cancel*** and if not, click ***Copy***.



3. In the *Directory Information* window, click ***Continue***.
4. Select the ***All Facilities*** check box from the *Select Options* group.
5. Highlight ***City*** from the *Search By* box.



6. Click ***Continue***. The *Search By Information* dialog will appear.
7. Enter ***Omaha*** in the *City* text box.
8. Enter ***NE*** in the *State* text box.
9. Enter **50** in the *Radius* text box.

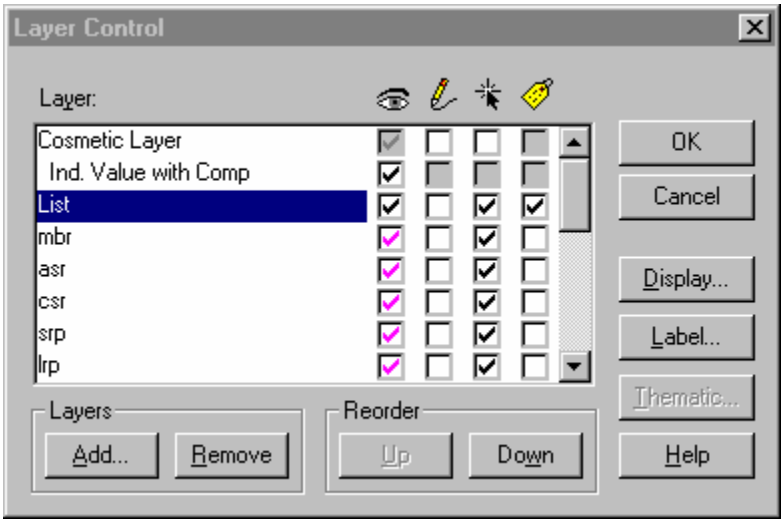


10. Click ***Map***. A map of Omaha, Nebraska will appear with all facilities that are located within a 50-mile buffer.

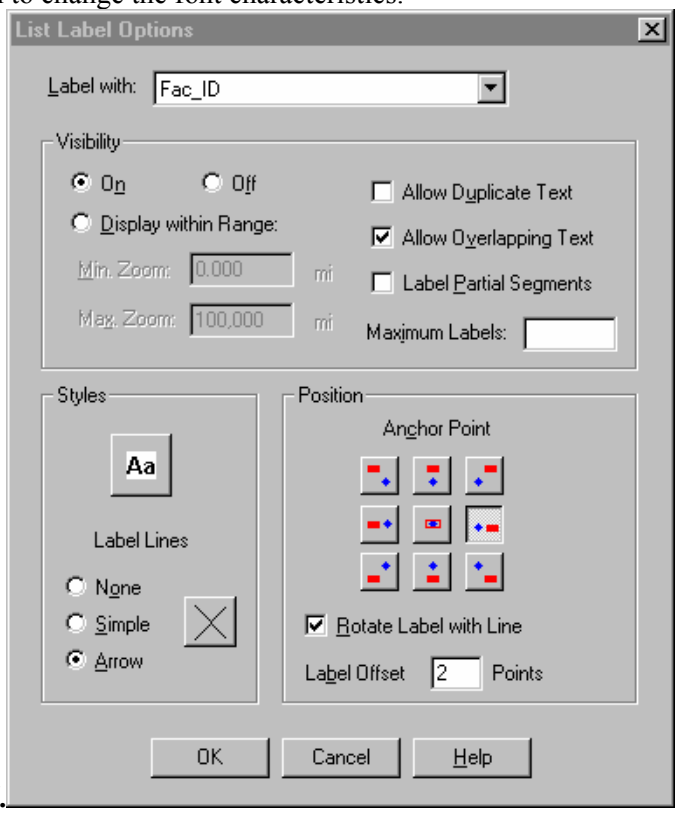
Label the Map with Fac_id

You will now utilize some of the skills learned in the previous *MapInfo* section to customize your map. Label the facilities with *Fac_id*.

1. Make the *Map* window active by clicking on it.
2. Select the ***Layer Control*** button from the main toolbar.
3. Check the ***AutoLabel*** check box for the *List* layer.



4. Click the ***Label*** button to change the font characteristics.



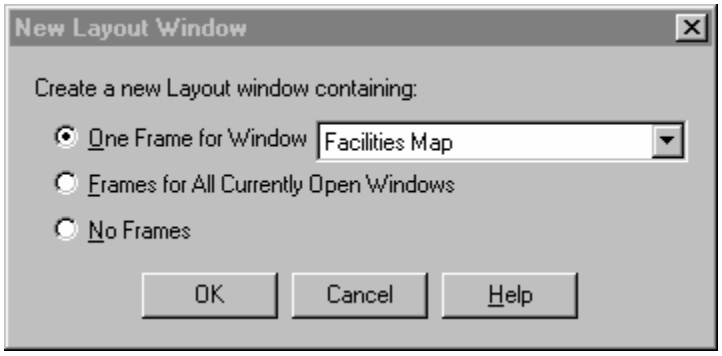
5. Label with the *Fac_id*.

6. Check the ***Allow Overlapping Text*** check box, and uncheck the ***Allow Duplicate Text*** check box.
7. Click the ***Label Styles*** button .
8. Change the font size to 12 pt (Times New Roman), make the *Effects* bold, and add a white box behind the text.
9. Click ***OK*** from the *Text Style* dialog and click ***OK*** in the *List Label Options* dialog.
10. Click ***OK*** from the *Layer Control* dialog. The map will label all of the facilities by fac_id.
11. Click and drag on the labels to spread them out if necessary.

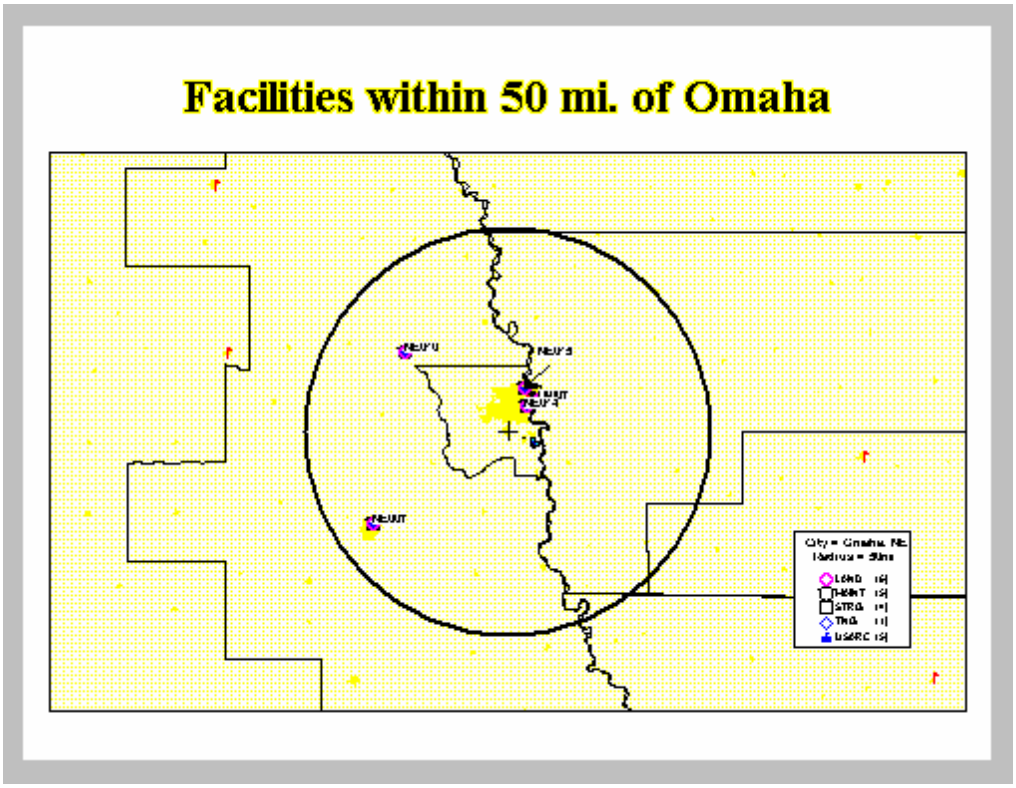
Create a Layout for the Map

You will now create a layout window for your map and print it.

1. From the ***File*** menu, choose ***Page Setup*** and change the Orientation to ***Landscape***.
2. Select ***Window > New Layout window***.
3. Select the ***One Frame for Window*** radio button.



4. Click ***OK***. A new layout window will appear with the facilities map and the legend.
5. Maximize the Layout window, then choose ***Layout > View Entire Layout***.
6. Rearrange the windows and add a title to the map using the Text tool.
7. Print the map from the Layout window by selecting ***File > Print***.



8. Select ***File > Save Workspace***. In your H:\ENBOSS\ARGISS\FPS\DATA directory, save the workspace as ***OMAHA50.WOR***.

Generate and Print a Facility Summary Report

The next step is to produce the two reports requested by the Congressman for the facilities within the 50-mile buffer.

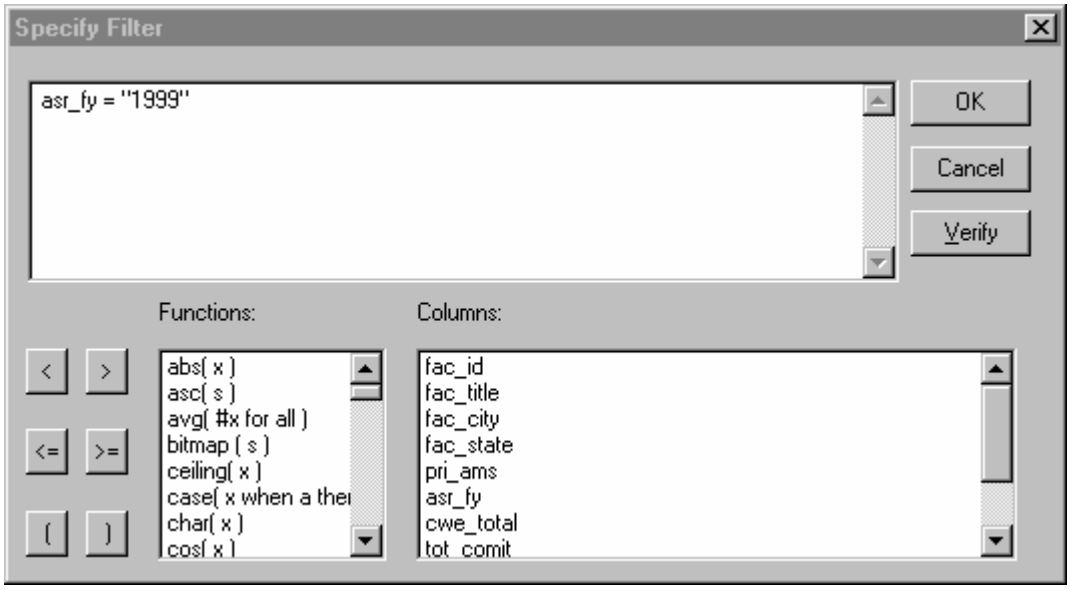
1. Select ***Info*** from the menu bar.
2. Select ***Canned Reports*** from the menu items. This will launch *FPS Reports*.
3. Click the ***FSR*** button

to preview the *Facility Summary Report*.
4. Select ***File > Print*** to print the report.
5. Close the *Facility Summary Report*

Generate an Account Summary Report for Current Fiscal Year

1. Click the ***ASR*** button

to preview the *Account Summary Report***.**
2. Select ***Rows > Filter*** to extract data for any fiscal year. The *Specify Filter* dialog will appear.

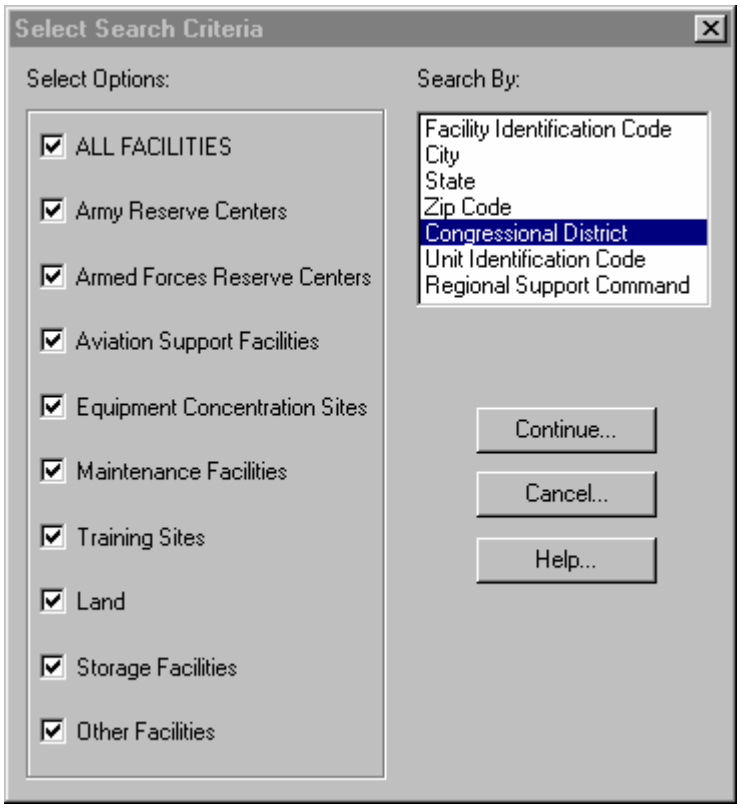


3. Select or type the following expression in the expression window: ***asr_fy = "1999"***
4. Click ***Verify***.
5. If the expression is valid click ***OK***. Only the records for 1999 will appear.
6. Click the ***Retrieve*** button to recalculate the report with your filter.
7. Select ***File > Print*** to print the report.
8. Click the ***Close***, then the ***Exit*** button.

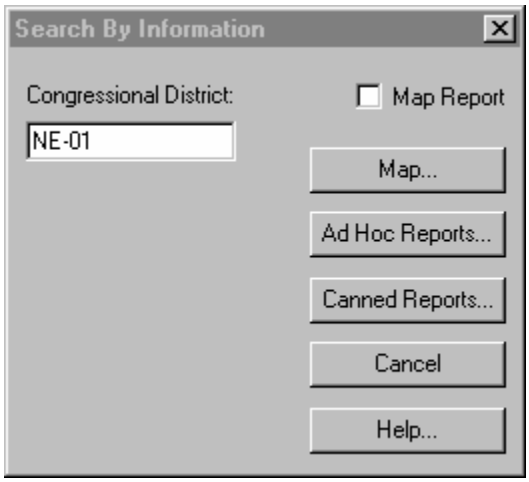
Create Map of Congressional District NE-01

The Congressman has also requested a map of all facilities in his district labeled with fac_id and space utilization.

1. Select ***Info > Change Info*** from the menu bar.
2. Click the ***All Facilities*** check box and highlight ***Congressional District*** from the *Select Search Criteria* window.



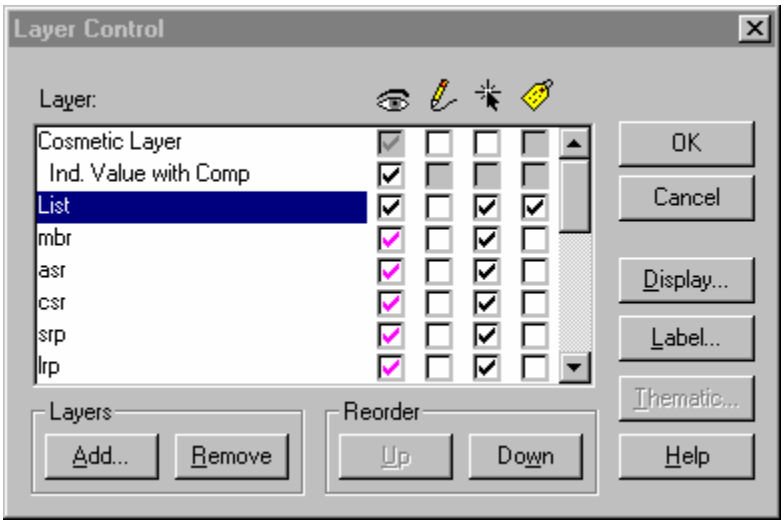
3. Click ***Continue***.
4. Enter ***NE-01*** in the *Congressional District* text box.



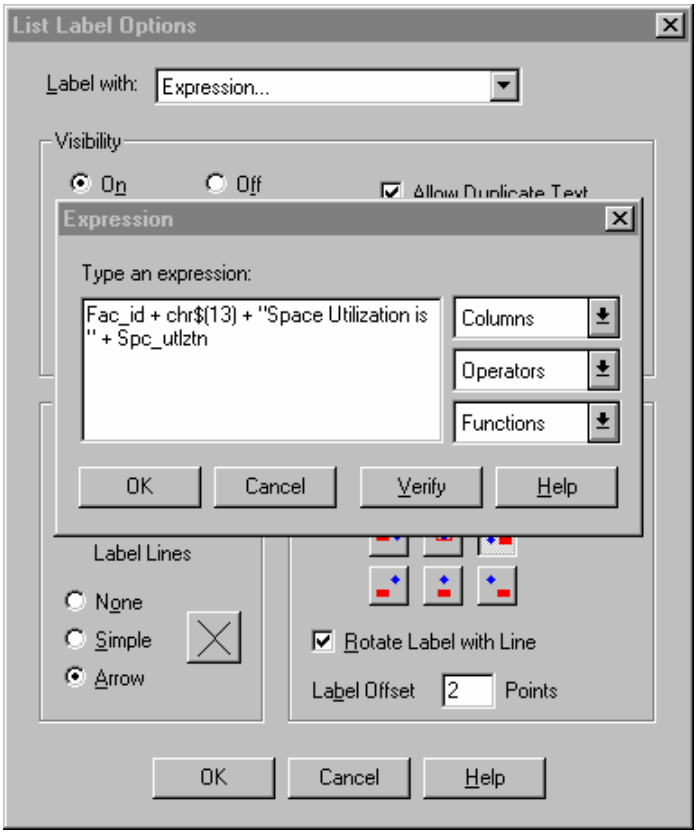
5. Click ***Map***.
6. Click ***Info > Data Summary*** to obtain summary statistics of the search. Notice that the space utilization for these facilities is over 150%.

Label the Facilities with Fac_id and Space Utilization

1. Click the ***Layer Control*** button from the main toolbar.
2. Highlight the ***List*** layer and click the ***Autolabel*** check box.



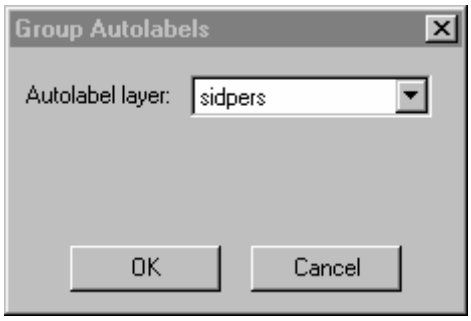
3. Click the ***Label*** button.
4. In the *Label with* text box select ***Expression*** from the drop down box. An *Expression* window will appear.



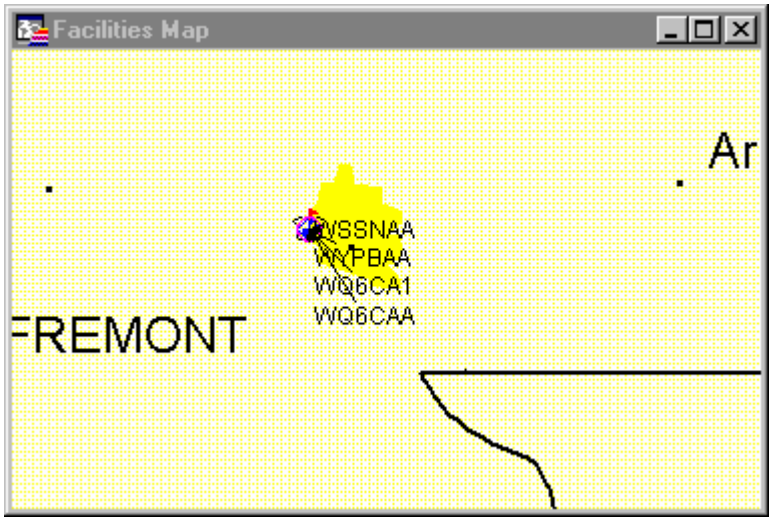
5. Enter the following expression: ***Fac_id + chr$(13) + "Space Utilization is " + Spc_utlztn.***
6. Click ***Verify***.
7. Click ***OK*** if expression is valid, and ***OK*** in the *List Label Options* window.
8. Click ***OK*** again from the *Layer Control* window.
9. Make the *Map* window active and select ***File > Print***.
10. Select ***File > Save Workspace***. Save as ***NE01.WOR*** to the H:\ENBOSS\ARGISS\FPS\DATA directory.

Group AutoLabel NE003 by UIC

1. Select one of the *NE003* records from the *Browser* window.
2. ***NE003*** is now highlighted on the *Map* window. Use the ***Zoom In*** tool to zoom in to *NE003*. *NE003* should be the only facility visible in the map window.
3. Select the ***Layer Control*** button from the *Main* toolbar.
4. Uncheck the ***Autolabel*** check box for the *List* layer, highlight the ***SIDPERS*** layer, check the ***AutoLabel*** check box.
5. Click the ***Label*** button, check the ***Allow Overlapping Text*** check box, and click ***OK***.
6. Click ***OK*** on the *Layer Control* window. Notice how the labels are stacked upon each other.
7. Select ***Map > Group Autolabels*** from the menu bar.
8. Select ***sidpers*** as the *Autolabel layer.*



9. Click ***OK***. The UIC labels are now stacked neatly in a vertical format.



10. Print the map and exit ***FPS***.

Conclusion

FPS is a powerful automation tool that allows the user to quickly and easily produce maps and reports. The system also provides full *MapInfo* functionality. The system can be used by novice users as well as experienced *MapInfo* users.

To summarize, you created and printed the following maps and workspaces:

- **OMAHA50** - Map of all facilities within a 50 mile radius of Omaha
- **NE01** - Map of all facilities within the Congressman's district labeled by Fac_id and space utilization.

The following reports were generated for the Congressman:

- **FACILITY SUMMARY REPORT** - for the facilities within a 50 mile radius of Omaha
- **ACCOUNT SUMMARY REPORT** - for the current fiscal year for the facilities within a 50 mile radius of Omaha.

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Data Bridge Exercises

Scenario

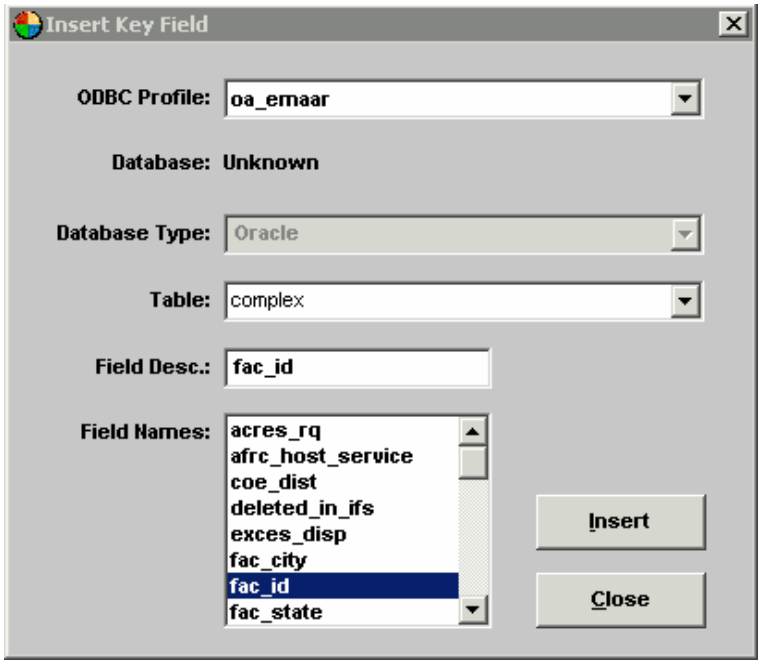
In order to create some of the reports you must create queries in the *Data Bridge* and save them as DBF files. These files will be used later to create your reports. Therefore, it is very important to save these query results to the *fps reports* profile. The list below is the type of data that you will retrieve using the *Data Bridge*:

- Gross and required facility square footage
- Unit information

This information comes from a variety of different sources. The following practical exercise will retrieve the necessary information using the *Data Bridge* to assist you in preparing for this briefing. But remember to change to the *Local* dataset!

Insert Primary Key from the Complex Table

1. Before inserting new Primary Keys, be sure the Primary Key Table is completely empty. Click on the ***Tables*** icon
2. Highlight the ***Primary Key Table*** from the ***Reference Table*** selection box.
3. Click ***New***.
4. Within the ***Insert Key Field*** dialog select ***oa_emaar*** from the ***ODBC Profile*** drop down box. This is the profile that the ***COMPLEX*** table comes from.

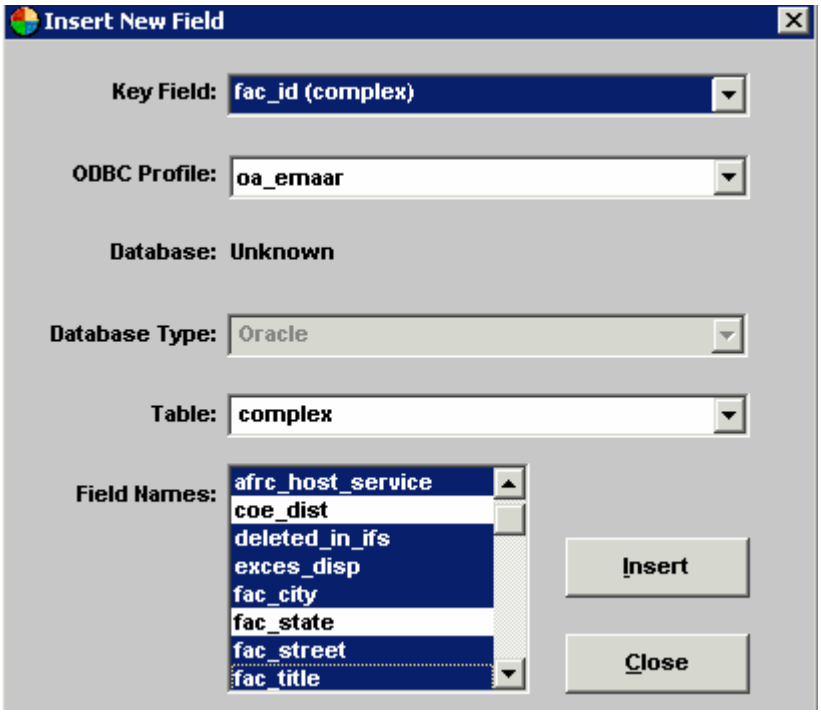


5. Select the ***COMPLEX*** table from the Table drop down box. From the Field Names list box select ***Fac_id*** as the key column to insert.
6. Click ***Insert*** to insert Fac_id into the Primary Key Table, and click ***OK*** in the confirmation message.

7. Click ***Close***. Note you now have a key field name "F***ac_id***" for table name ***COMPLEX*** in the Primary Key table.

Insert Fields into the Local Data Bridge Table

1. Highlight the ***Data Bridge Table*** from the ***Reference Table*** list box within the Local Table Maintenance dialog. Notice only the Fac_id field is populated within the Data Bridge table.
2. Click ***New***.
3. Select ***Fac_id*** as the key field from the ***Key Field*** drop down box. This is the primary key that was just inserted into the Primary Key table.

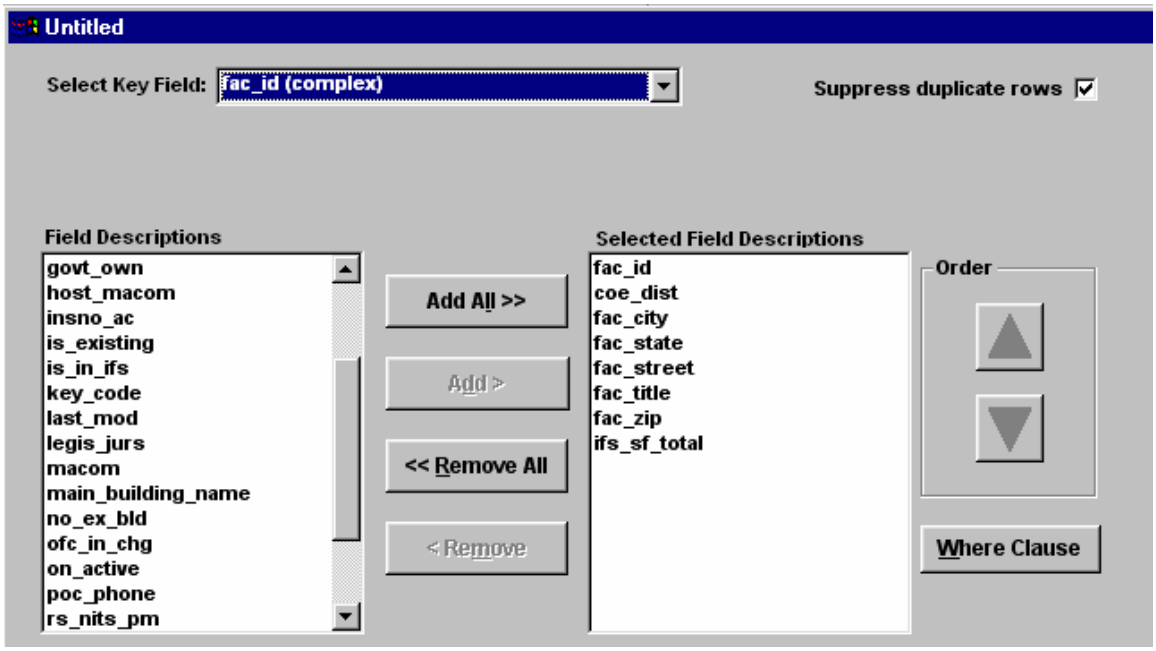


4. Select ***oa_emaar*** from the **ODBC Profile** drop down box.
5. Select ***Complex*** from the ***Table*** drop down box.
6. Highlight ***ALL*** of the fields from the ***Field Names*** drop down box (hold the shift button down and select the first and last field or drag the cursor down).
7. Click ***Insert*** to insert the selected fields into the Data Bridge Table.
8. Click ***OK*** in the confirmation message box.
9. Click ***Close*** to get back to the ***Local Table Maintenance*** window, and ***Close*** again to return to the main Data Bridge dialog.

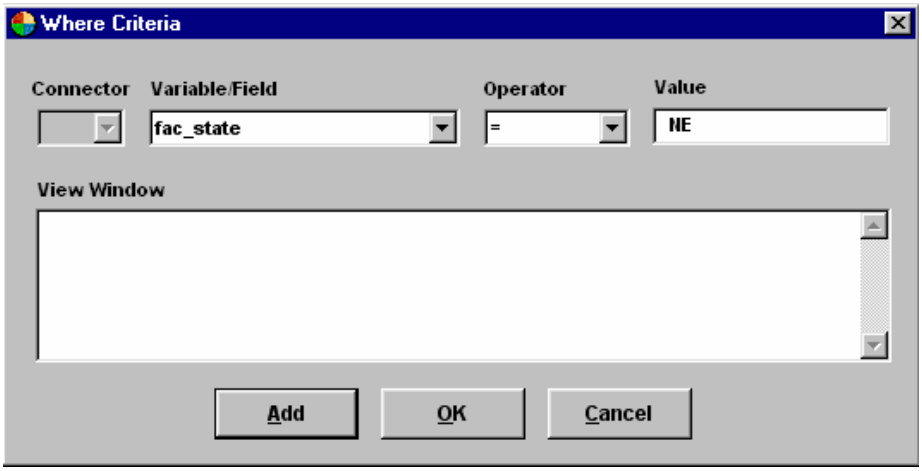
Query the Complex Table for Facility Data

Once the Data Bridge table is populated with data, you can perform queries on the data through the Data Bridge ***Query*** menu. The following steps will query the COMPLEX Table from EMAAR for all the facilities in the state of Nebraska.

1. To create the new query click on the ***New*** icon from the main Data Bridge dialog or select ***Query > New.***
2. From the ***Key Field*** drop down box choose ***FAC_ID*** (from complex) as the key field. This should be the only key field available at this point.



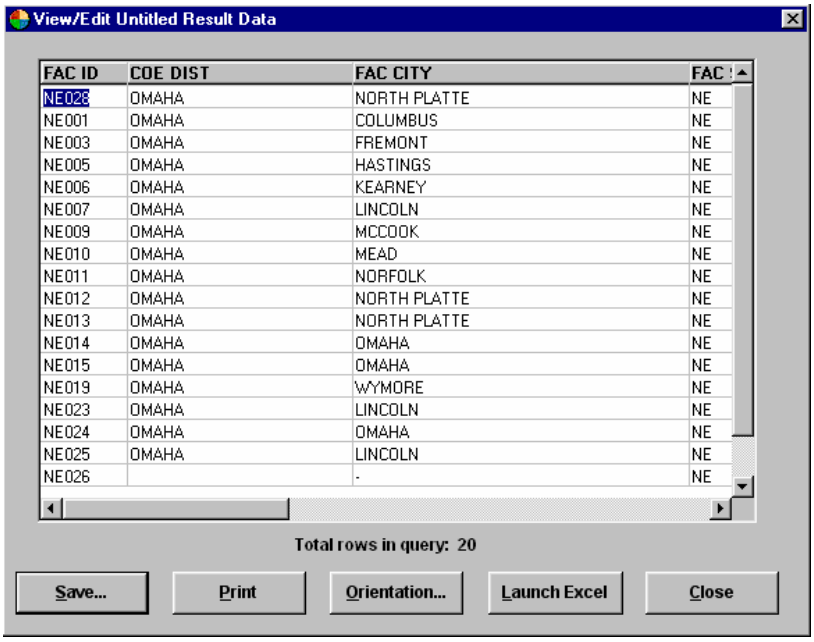
3. Double-click the following fields from the Field Description list box: ***coe_dist, fac_city, fac_state, fac_street, fac_title, fac_zip, ifs_sf_total***. (Do not remove FAC_ID from the Selected Field Descriptions list box).
4. Click the ***Where Clause*** button to add a filter for the state of Nebraska to the query. The Where Criteria window appears.
5. Select ***fac_state*** from the Variable/Field drop down box.
6. Select or type the = sign in the Operator box.
7. Enter ***NE*** for the state of Nebraska in the ***Value*** box.
8. Click ***Add*** to add the where criteria to the ***View Window***.



9. Click ***OK*** to go back to the Query dialog.
10. To run the query, click the ***Run*** icon or select the ***Execute*** menu and select ***Run***. This will process the query for all the selected columns from COMPLEX for the state of Nebraska.

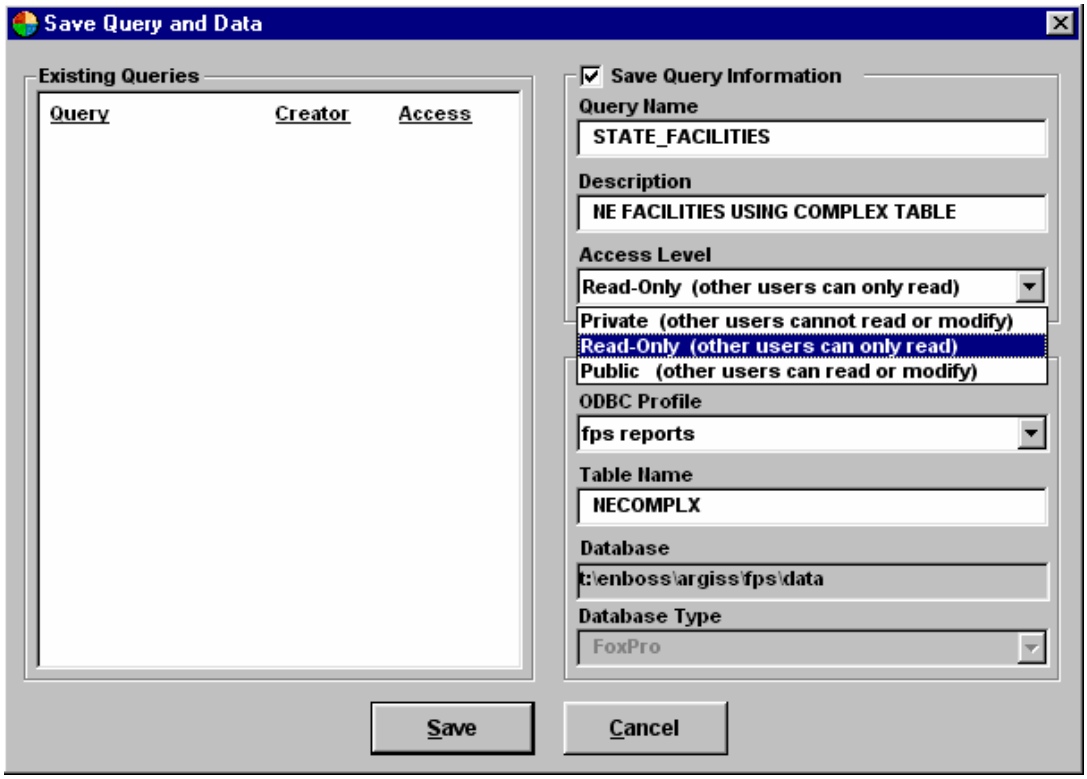
View / Edit Window

Once the query is through processing a ***View/Edit*** dialog will appear. These are the results of your query. We are going to save these query results for later use in your report and presentation to the Congressman. Notice that the total number of rows for the query is displayed at the bottom of the dialog (this may not match the picture below as the data is dynamic).



Save the Results of the Query

1. Click ***Save*** to save the results of the query. The following Save Query and Data dialog appears.



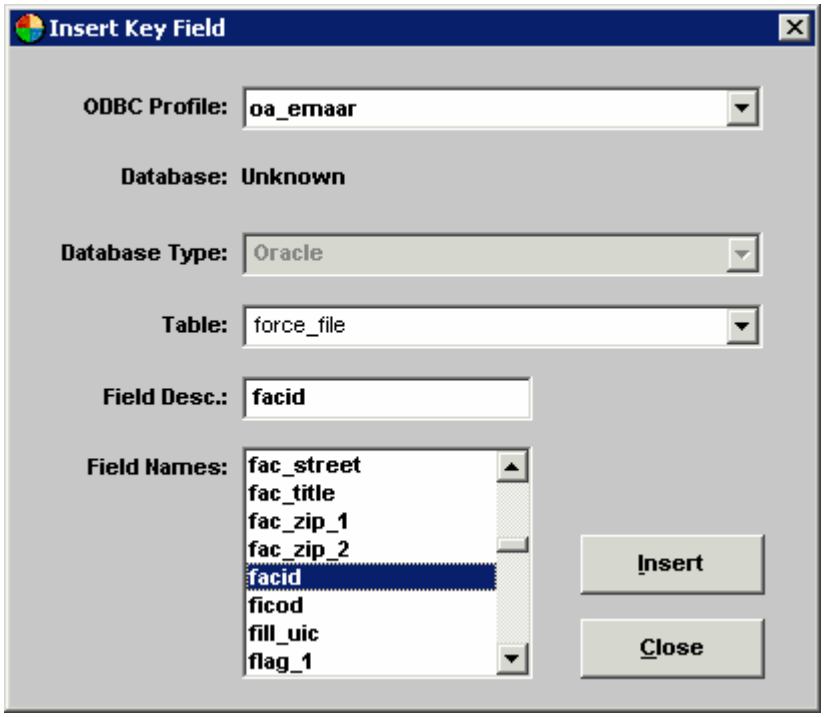
2. Check the ***Save Query Information*** check box.
3. Enter a query name and description in the ***Name*** text box and ***Description*** text box respectively.
4. In the ***Access Level*** text box choose an access level from the drop down box.
5. Select ***fps reports*** as the ODBC Profile.
6. Enter ***NECOMPLX*** as the table name in the ***Table Name*** text box. Click ***Save***.
7. Click ***OK*** on the save confirmation message dialogs.
8. Click ***Close*** on the View/Edit Untitled Result Data dialog. Notice the title bar of the Query dialog. It has changed from untitled to the query name you have specified.
9. Click the ***Close*** button or ***Query > Close***.

Setting up Relationships

You will now set up a relationship between the COMPLEX table from oa_emaar and the FORCE_FIL table from oa_emaar. This will relate, or join these tables so that you can query both tables as if they were one. Once these tables are related, you will query them to obtain the unit information requested by Congressman Snort.

First you must insert primary keys for all of the tables you would like to include in your query.

1. From the ***Administration*** menu, select ***Table Maintenance***.
2. The ***Primary Key Table*** is active. Click ***New*** to add new primary keys.



Select ***oa_emaar*** for the ***ODBC profile*** will be the default setting

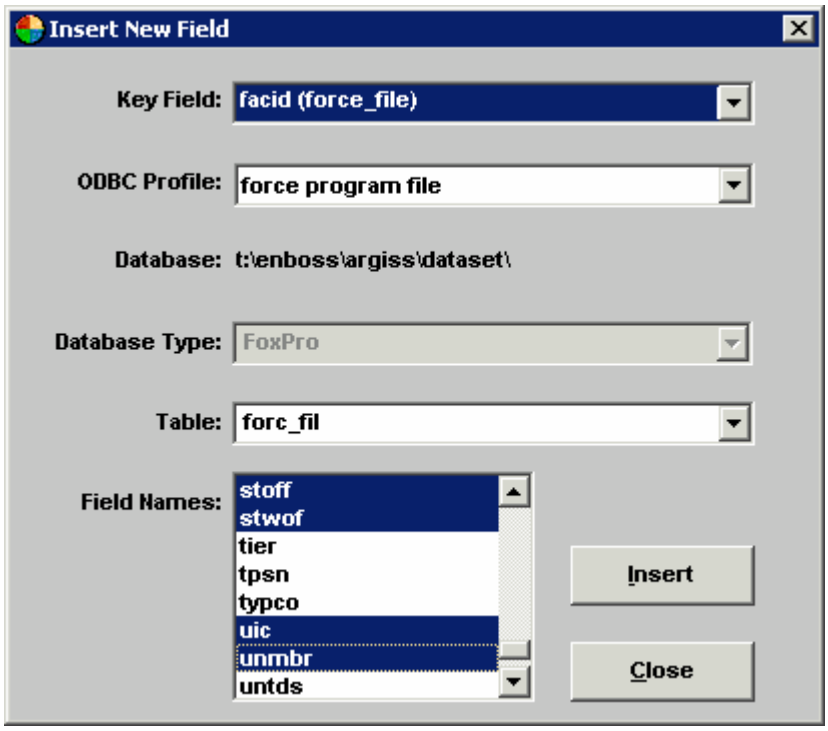
3. Select the ***force file*** table in the ***Table*** drop down box.
4. Select ***facid*** as the primary key from the ***Field Names*** box.
5. Click ***Insert***.
6. Click ***OK*** on the confirmation message dialog.
7. Click ***Close***.

Facid from the FORC_FIL is now entered into the Primary Key table. Any source data that has the column Fac_id or Facid in it can now be inserted into the *Data Bridge* table. In this case the RPINFODT table has the column Fac_id. The following sections will illustrate how to enter fields from all three tables.

Insert fields from the FORC_FIL table:

1. Highlight the ***Data Bridge Table*** from the ***Reference Table*** list box. The Data Bridge Table will become active.
2. Click ***New*** to insert new fields from the FORC_FIL table.
3. Select ***facid*** from the ***Key Field*** drop down list and force program file from the ODBC Profile drop down list.
4. Select ***forc_fil*** from the ***Table*** drop down box.
5. Highlight the fields you wish to insert into the ***Data Bridge Table***. Be sure to hold down the Control button while selecting the fields.
6. Choose **all** of the fields that begin with ***au***, **all** of the fields that begin with ***st***, and ***uic*** and ***unmbr***.

Field Name	Table Name
auagr	forcefile
auciv	forcefile
auenl	forcefile
auoff	forcefile
authr	forcefile
auwof	forcefile
staco	forcefile
stagr	forcefile
stciv	forcefile
stenl	forcefile
stoff	forcefile
stwof	forcefile
uic	forcefile
unmbr	forcefile

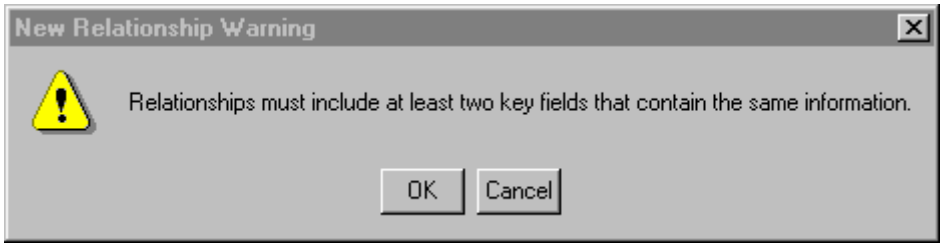


7. Click ***Insert***, then ***OK*** in the confirmation dialog.
8. Clock ***Close***.

Set a relationship between Fac_id and Facid

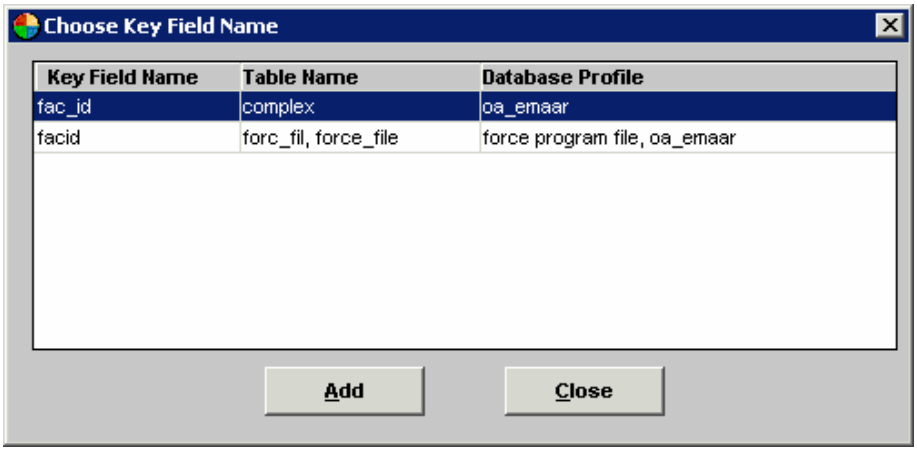
Before you query the data, you must set up a relationship. Since Fac_id and Facid are spelled differently, you must set an explicit relationship in the *Relationship Table* so that the *Data Bridge* knows that the fields contain the same data. This will allow you to query all of the fields that you have just entered. The relationship will join the data into a large, single database.

1. Click on ***Relationship Table*** from the ***Reference Table*** list box. An empty Relationship Table will appear.
2. Click the ***New Relationship*** button. The ***New Relationship Warning*** message dialog appears.

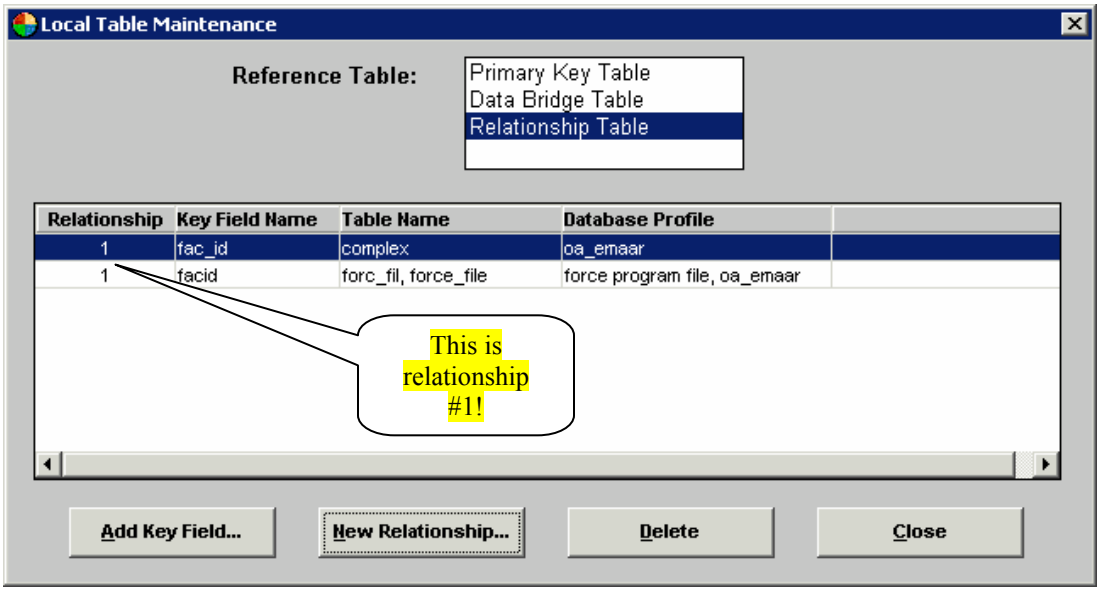

New Relationship Warning
Relationships must include at least two key fields that contain the same information.
OK
Cancel

3. Click ***OK***.

4. In the ***Choose Key Field Name*** dialog, highlight one of the Key Field Names and click ***Add***.



5. Click ***OK*** on the confirmation dialog, and click Add to add the second field to the relationship.
6. Click ***OK*** again, and click ***Close***.
7. The Relationship Table should appear displaying the two fields in the relationship as below.

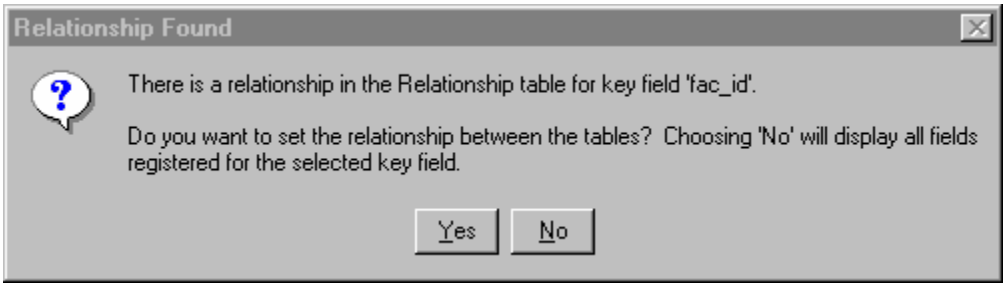


8. Click ***Close*** to exit Table Maintenance.

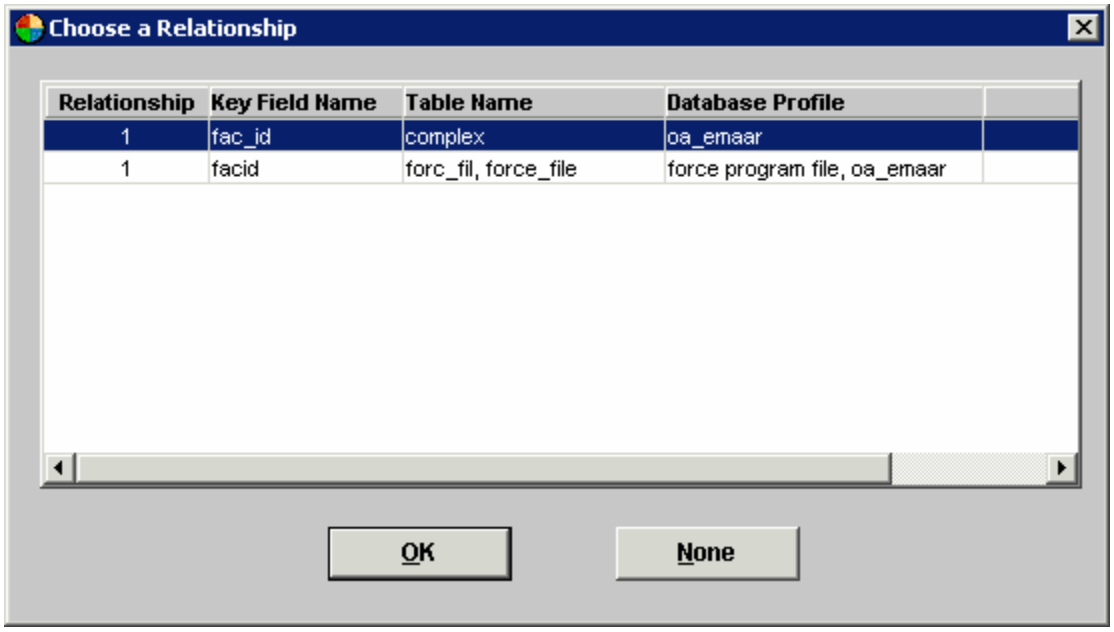
Create and Save a Query

You are now ready to create a query from the data you have just inserted into the Data Bridge table. You will pull out the relevant information that you need to create for your presentation. The query will include facility and unit information that will be used later for creating maps and reports.

1. Click the ***New*** button from the main ***Data Bridge*** window.
2. Select a key field from the ***Key Field*** drop down box. There should be only two key fields available. Choose either one.
3. The following message will appear. Click ***Yes***.


Relationship Found
There is a relationship in the Relationship table for key field 'fac_id'.
Do you want to set the relationship between the tables? Choosing 'No' will display all fields registered for the selected key field.
Yes
No

4. Select a relationship from the ***Choose a Relationship*** dialog. There is currently only one relationship. Click on either Key Field Name to select a relationship. By choosing the relationship you will "join" the tables together and query them as if they were one.

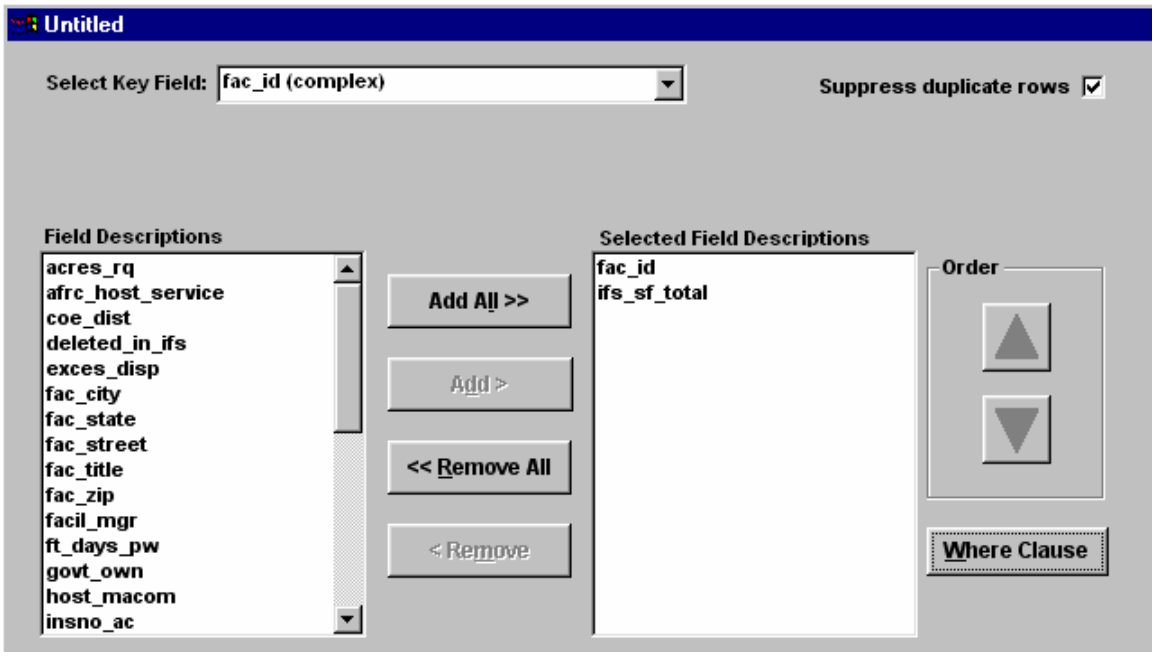


5. Click ***OK***.

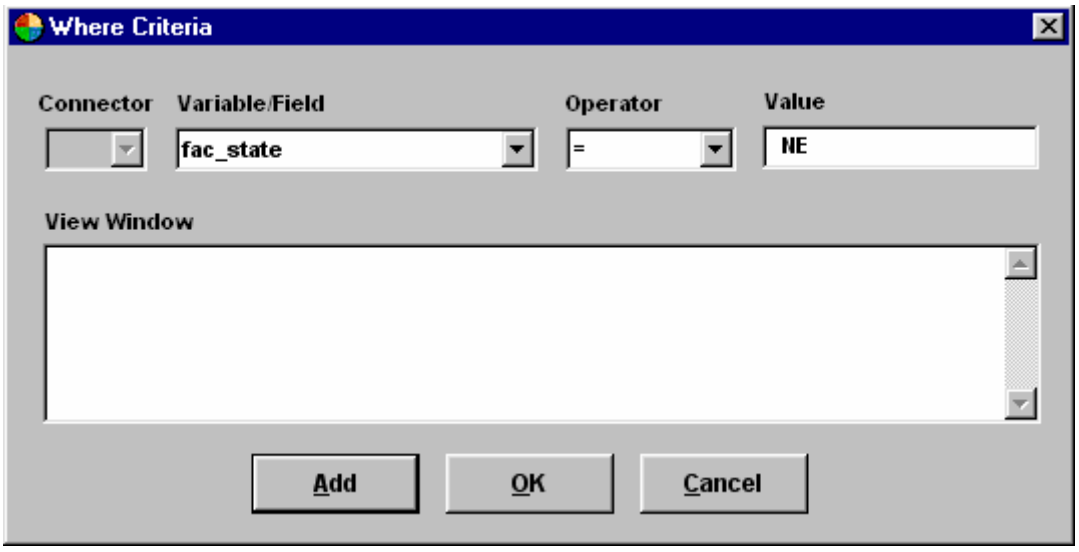
Create Facility and FORC_FIL Query

1. Highlight the following fields from the Field Description list box. These are the fields from COMPLEX and the FORCE_FIL tables.

Field Name	Table Name
auagr	forcefile
auciv	forcefile
auenl	forcefile
auoff	forcefile
authr	forcefile
auwof	forcefile
fac_city	complex
fac_state	complex
fac_street	complex
fac_title	complex
fac_zip	complex
Ifs_sf_total	complex



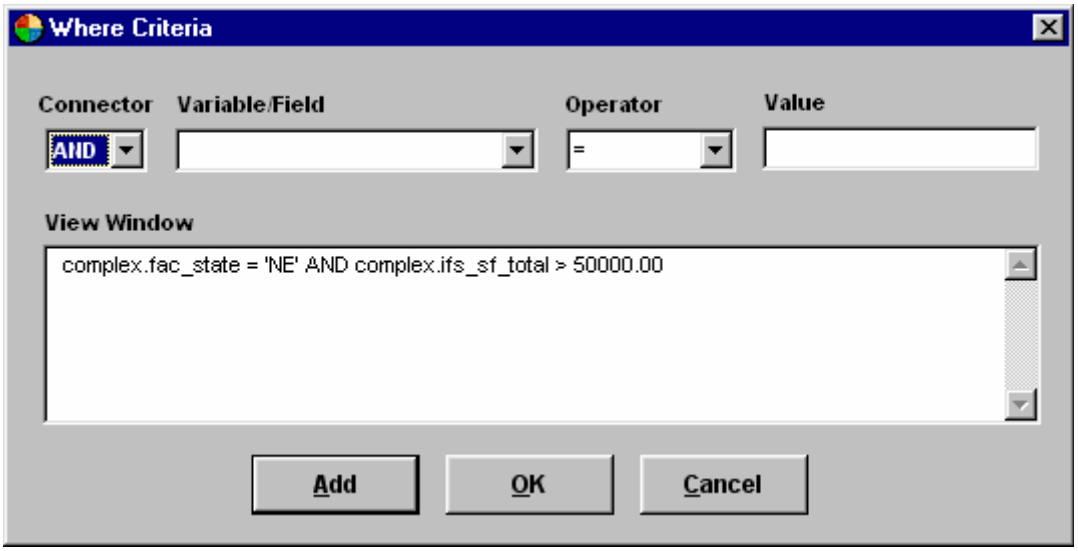
2. Click the ***Where Clause*** button to filter the data. The Where Criteria dialog will appear.



3. Select ***fac_state*** from the ***Variable/Field*** drop down box.
4. Select = from the ***Operator*** drop down box.
5. Enter ***NE*** in the ***Value*** text box.
6. Click ***Add*** to add the filter to the View Window.

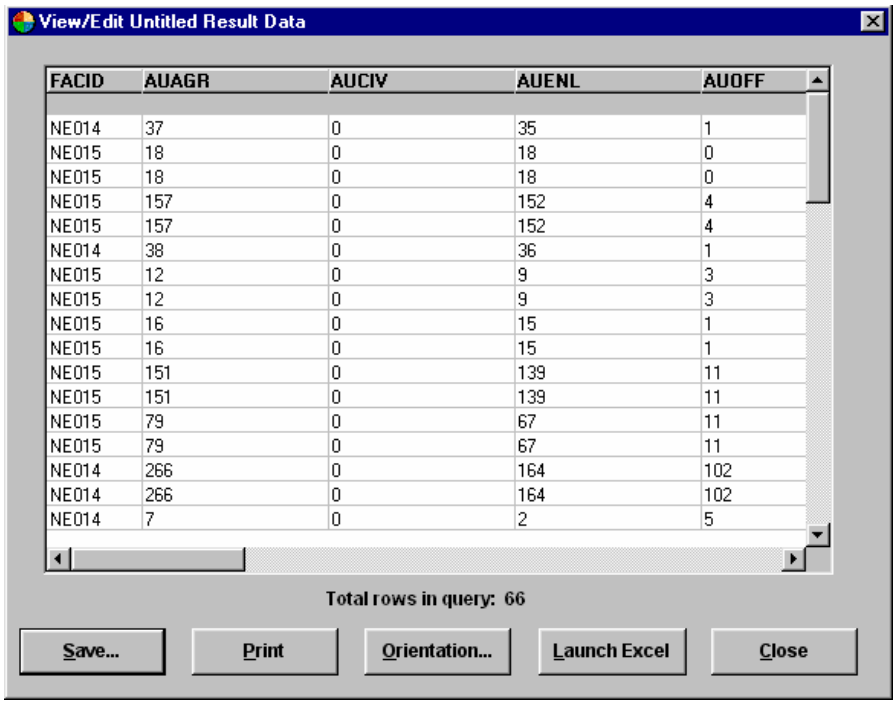
Add Another Criteria to the View Window

1. Select ***AND*** from the Connector drop down box.
2. Select ***ifs_sf_total*** from the Variable/Field drop down box.
3. Select > from the Operator drop down box.
4. Enter ***50000*** into the Value box.
5. Click ***Add***. The filter as shown below will retrieve all of the Nebraska facilities larger than 50,000 square feet.



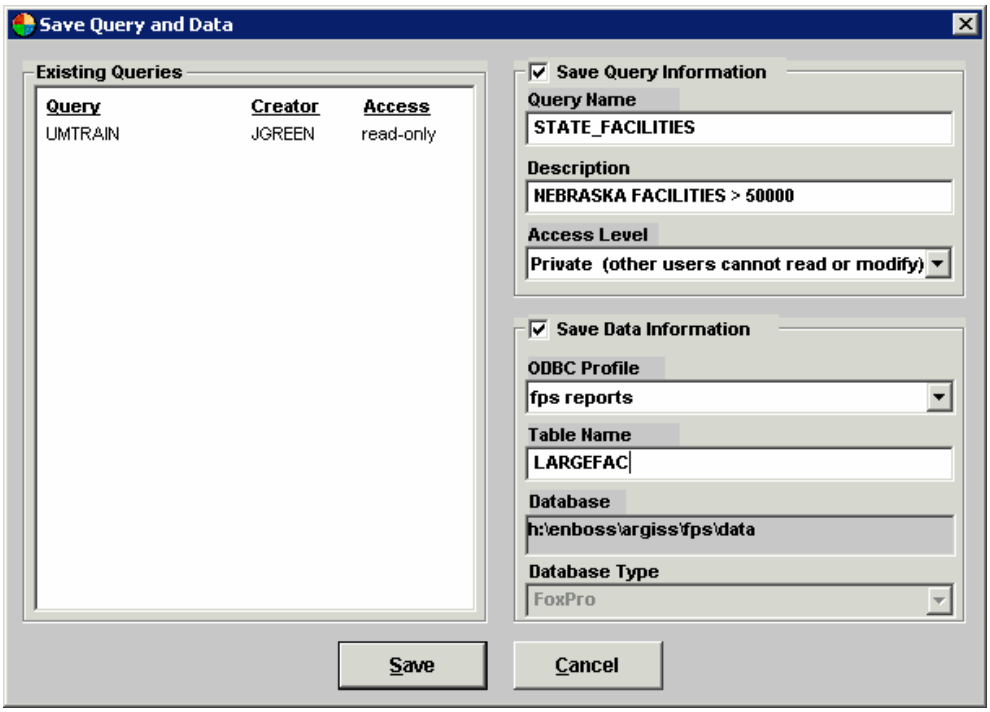
6. Click ***OK***.

7. Click the ***Run*** button to run the query and process the filter.



Save the Query and Data

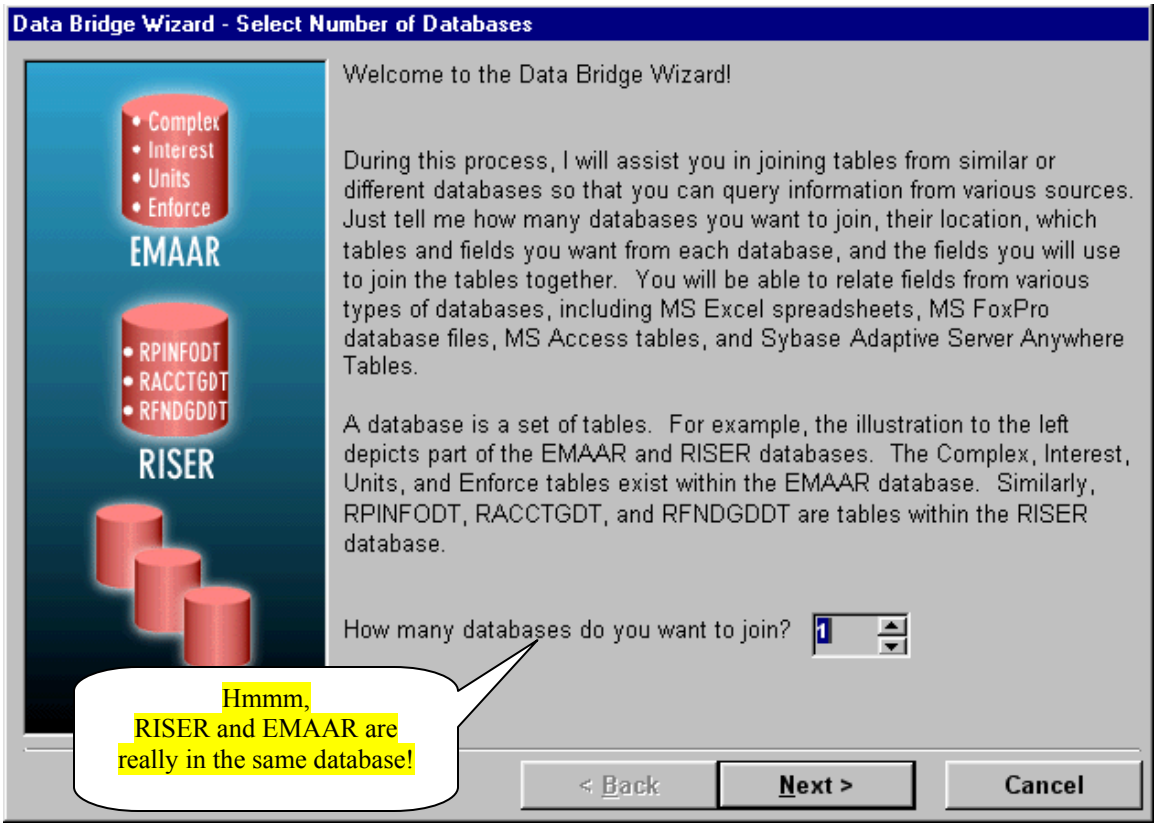
1. Click ***Save*** from the ***View/Edit Untitled Result Data*** dialog.
2. The ***Save Query*** and Data dialog will appear.



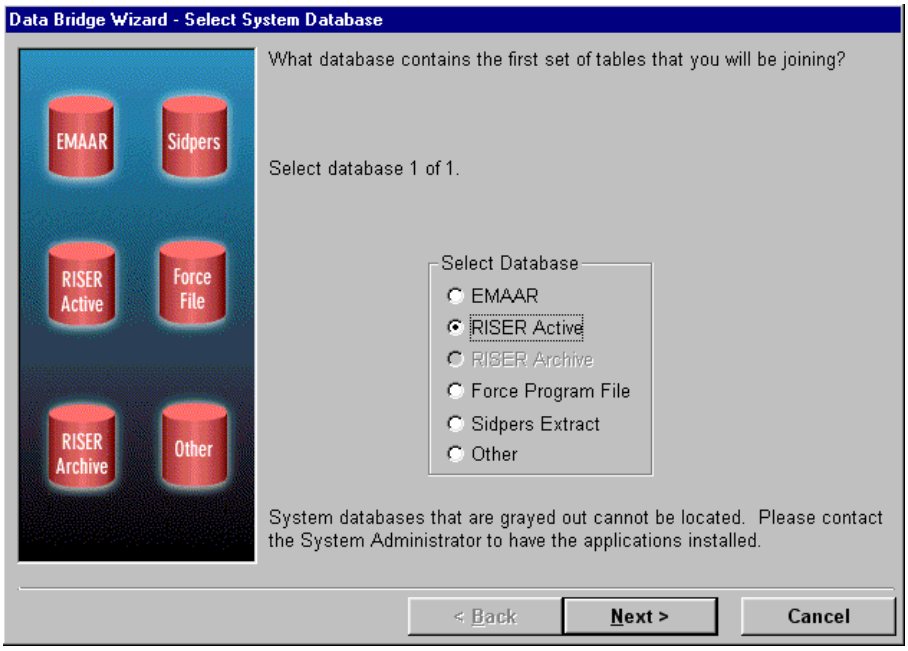
3. Check the ***Save Query Information*** check box.
4. Enter a name and description for the query in the ***Query Name*** and ***Description*** boxes.
5. Choose an access level from the ***Access Level*** drop down box.
6. Select ***fps reports*** for the ***ODBC Profile.***
7. Enter ***LARGEFAC*** as the table name in the ***Table Name*** text box.
8. Click ***Save***.
9. Click ***OK*** on the confirmation message dialogs, and click ***Close*** in the ***View/Edit Untitled Result Data*** dialog to get back to main Query dialog.
10. Click the ***Close*** button on the toolbar to close the query, which is now named **STATE_FACILITES**.
11. To save changes, click ***Yes***.

Query with the Data Bridge Wizard

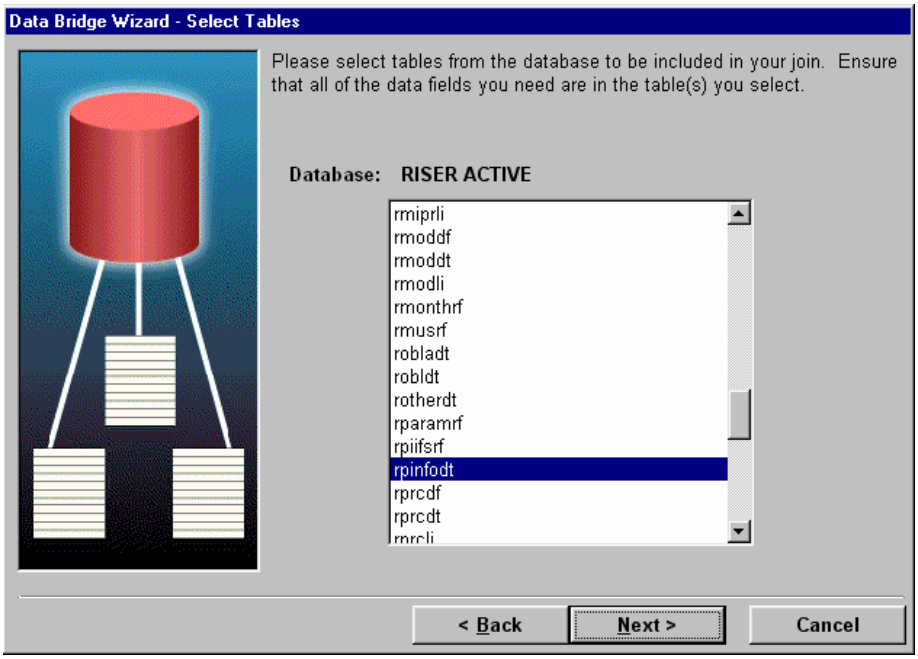
1. Start the ***Data Bridge Wizard*** using either the menu or the icon.
2. Enter the number of databases for this query. In this example, we will be using only one table to build a query on Nebraska work orders.


Data Bridge Wizard - Select Number of Databases
Complex
Interest
Units
Enforce
EMAAR
RPINFODT
RACCTGDT
RFNDGDDT
RISER
Welcome to the Data Bridge Wizard!
During this process, I will assist you in joining tables from similar or different databases so that you can query information from various sources. Just tell me how many databases you want to join, their location, which tables and fields you want from each database, and the fields you will use to join the tables together. You will be able to relate fields from various types of databases, including MS Excel spreadsheets, MS FoxPro database files, MS Access tables, and Sybase Adaptive Server Anywhere Tables.
A database is a set of tables. For example, the illustration to the left depicts part of the EMAAR and RISER databases. The Complex, Interest, Units, and Enforce tables exist within the EMAAR database. Similarly, RPINFODT, RACCTGDT, and RFNDGDDT are tables within the RISER database.
How many databases do you want to join?
1
Hmmm,
RISER and EMAAR are
really in the same database!
< Back
Next >
Cancel

3. Click ***Next***.



4. Select the ***RISER Active*** radio button from the ***Select System Database*** dialog.
5. Click Next

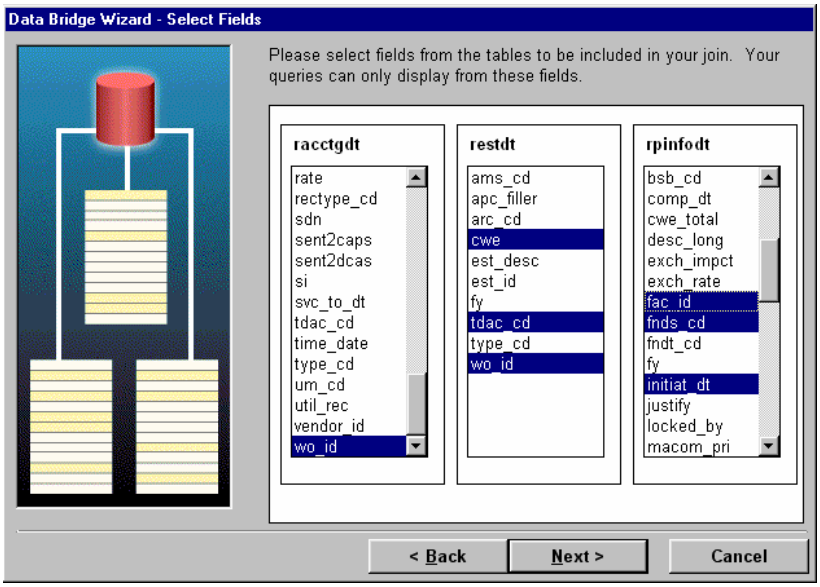


6. When the ***Select Tables*** dialog appears, choose the FOLLOWING TABLES:

racctgdt
restdt
rpinfodt

Scroll down the list as necessary and hold the <***CTRL***> button to select the multiple tables.

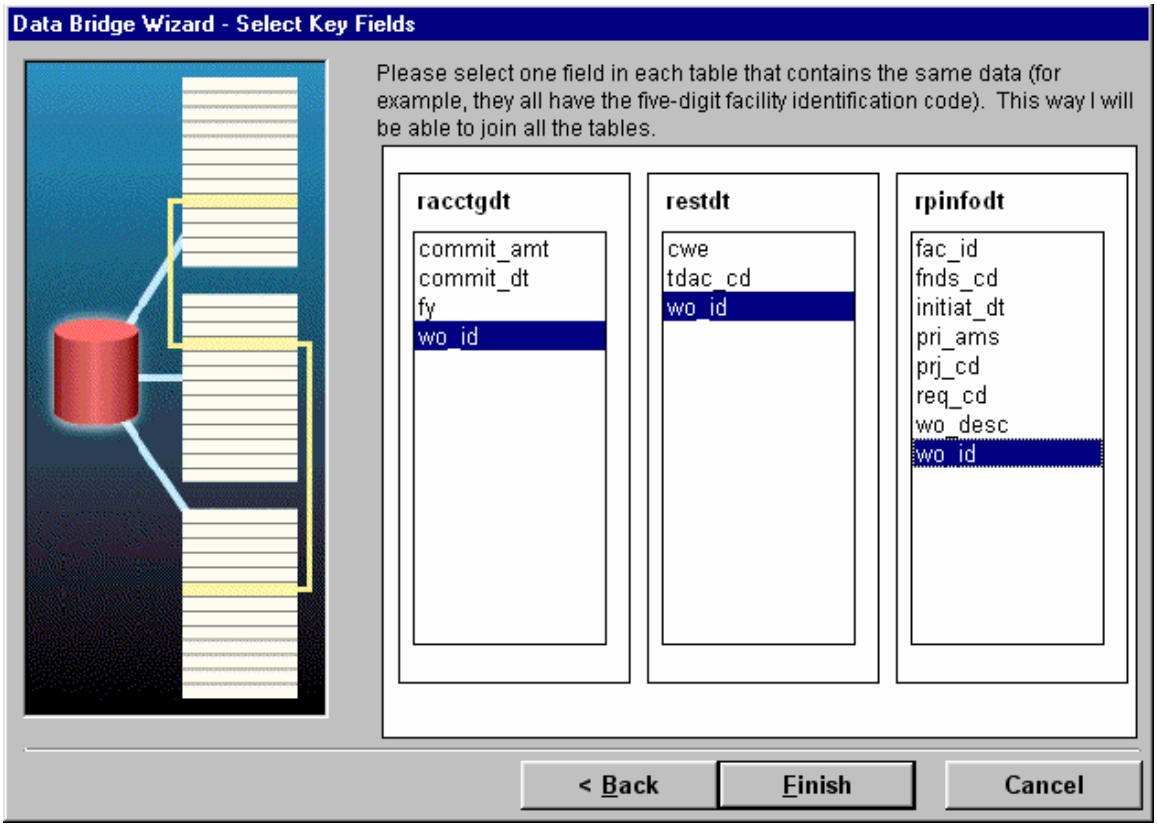
7. Click ***Next***.



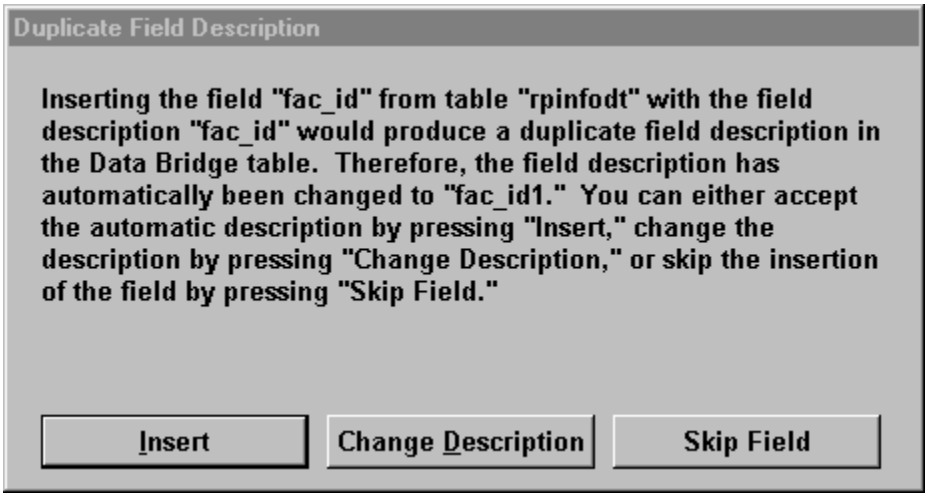
8. The ***Select Fields*** dialog appears. Use this dialog to select the fields from each table that need to be included in the query. The chart below will help in the selection:

Field Name	Table Name
Commit_amt	racctgdt
Commit_dt	racctgdt
FY	racctgdt
Wo_id	racctgdt
Cwe	restdt
Tdac_cd	restdt
Wo_id	restdt
Fac_id	rpinfodt
Fnds_cd	rpinfodt
Initiat_dt	rpinfodt
Pri_ams	rpinfodt
Prj_cd	rpinfodt
Req_cd	rpinfodt
Wo_desc	rpinfodt
Wo_id	rpinfodt

9. After the fields have been entered correctly, click the ***Next*** button.
10. The ***Select Key Fields*** dialog appears.

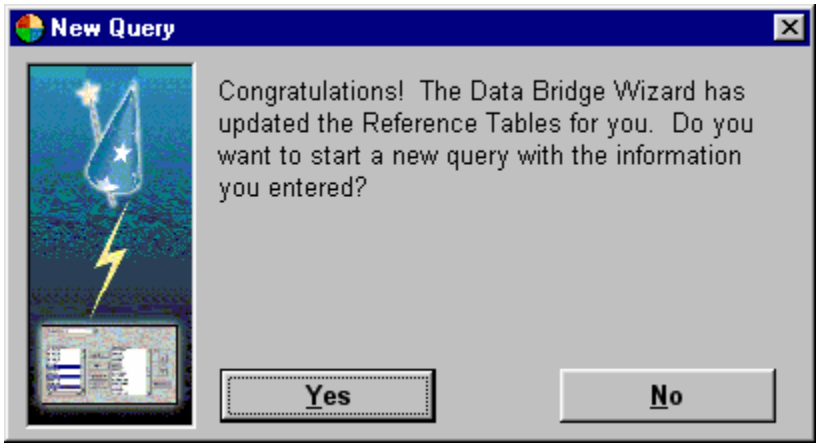


11. For all three tables, select ***Wo_id*** as the key field.
12. Click ***Finish***.
13. The ***Data Bridge Wizard*** informs you that there are duplicate field descriptions in the ***Data Bridge*** table.


Duplicate Field Description
Inserting the field "fac_id" from table "rpinfodt" with the field description "fac_id" would produce a duplicate field description in the Data Bridge table. Therefore, the field description has automatically been changed to "fac_id1." You can either accept the automatic description by pressing "Insert," change the description by pressing "Change Description," or skip the insertion of the field by pressing "Skip Field."
Insert
Change Description
Skip Field

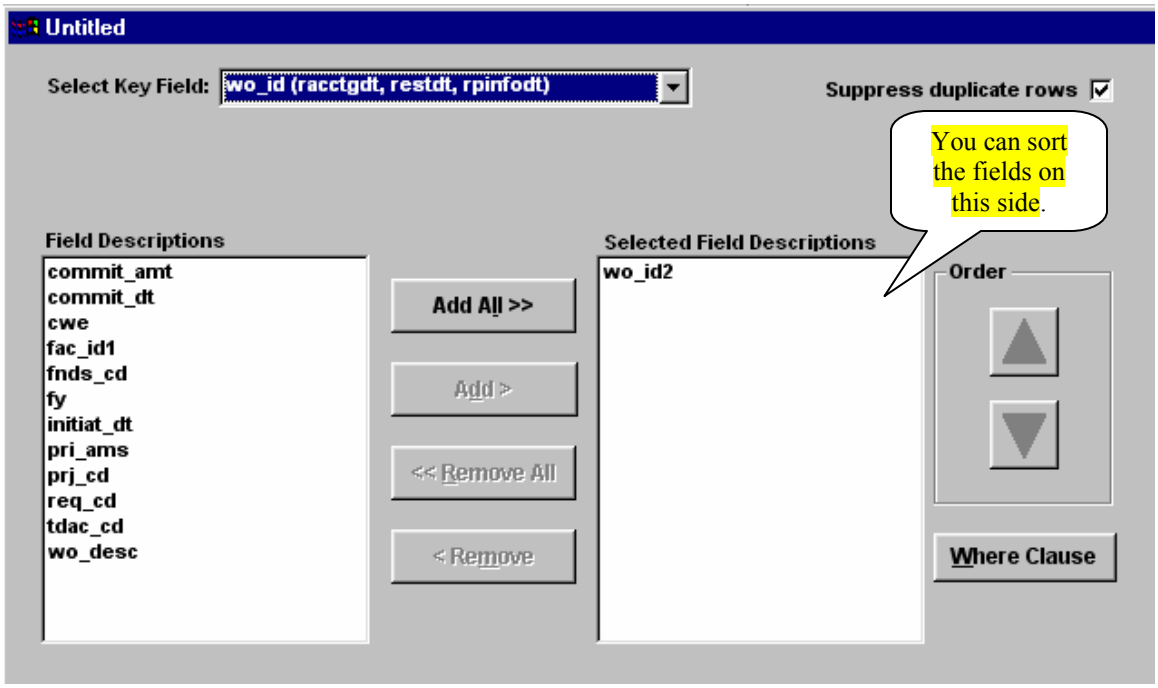
14. Click ***Insert*** to insert the suggested field name, or ***Change Description*** to give the field your own description. Continue this step until all of the duplicate descriptions are renamed.

15. The ***New Query*** dialog appears with a message that the Wizard has updated all reference tables for you.

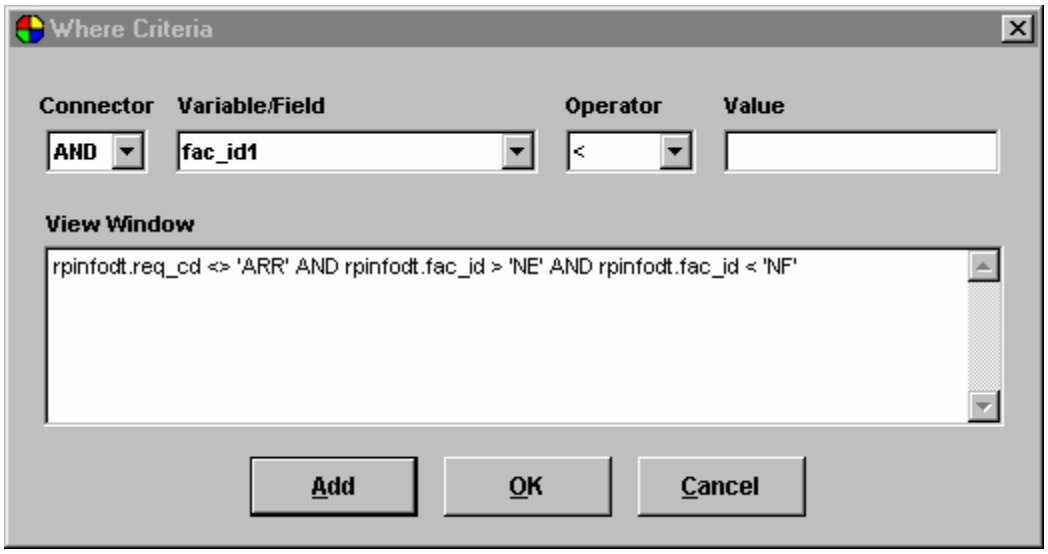

New Query
Congratulations! The Data Bridge Wizard has updated the Reference Tables for you. Do you want to start a new query with the information you entered?
Yes
No

Starting a New Query

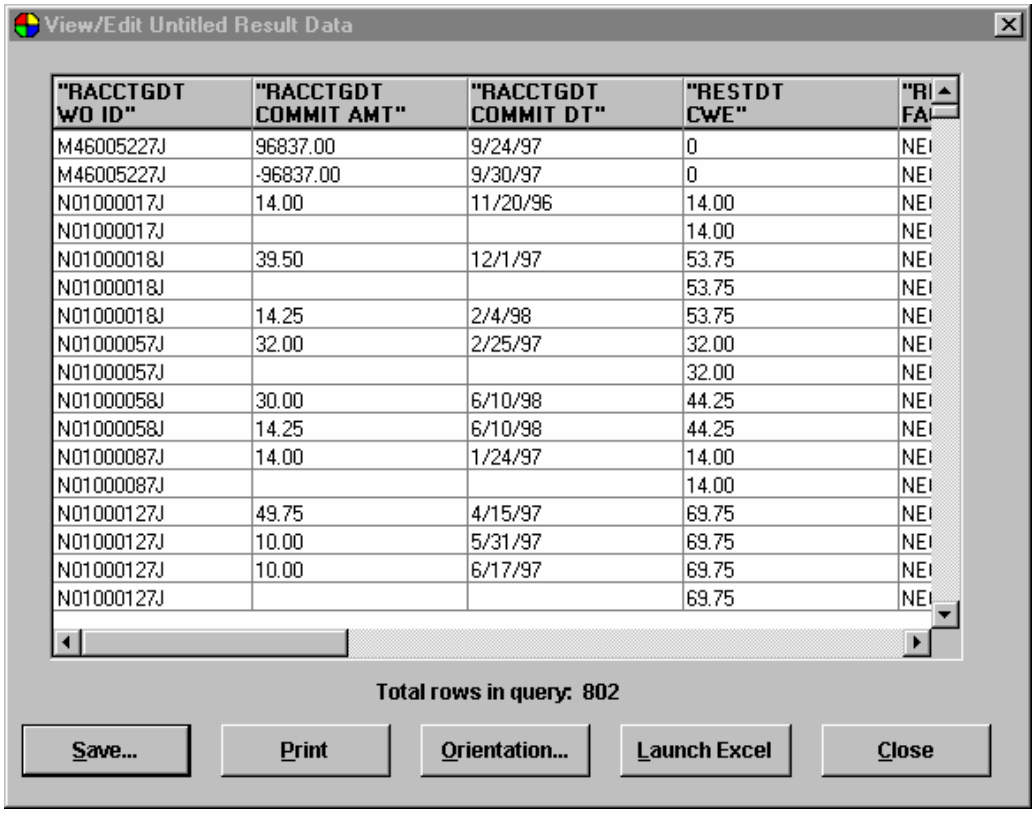
1. Click the ***Yes*** button to begin constructing the new query. The ***Untitled*** query window appears.



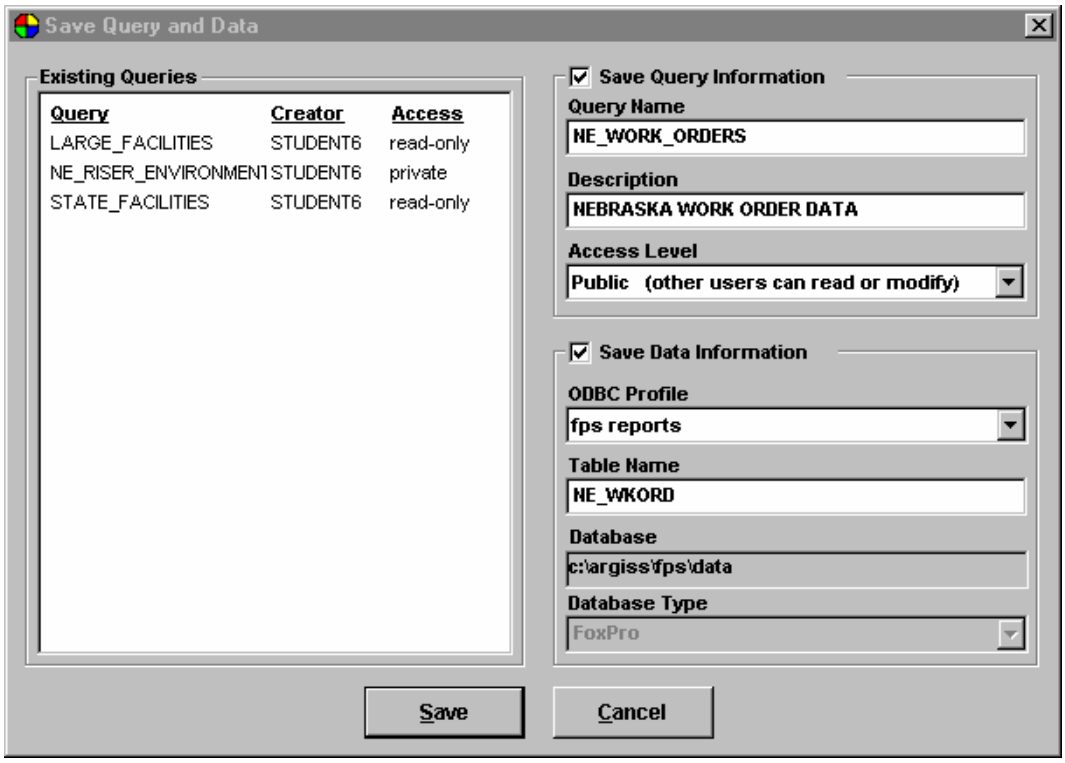
2. Select ***WO_ID*** from the ***Select Key Field*** drop down list.
3. The proper fields will show up in the ***Field Descriptions*** list box. Click the ***Add All*** button to move them into the ***Selected Field Descriptions*** list box.
4. Click the ***Where Clause*** button.



5. Select ***fac-id1*** in the *Variable/Field* dropdown menu, **<>** from the *Operator* dropdown menu and ***NE*** in the *Value* box, then ***Add***.
6. Select ***fac-id1*** in the *Variable/Field* dropdown menu, < from the *Operator* dropdown menu and ***NF*** in the *Value* box, then ***Add.***
7. When done, press ***OK***.
8. Now run the query by pressing the ***Run*** icon.
9. The ***View/Edit*** dialog appears with the results of your query.



10. Save the query and its results using the information shown on the next page.



Conclusion

The *Data Bridge* practical exercise demonstrated the powerful data management, database integration and query tool available to the Engineer.

The queries that were created in this practical exercise will be used in later practical exercises to demonstrate the flexibility and integration of the ARGISS modules. To summarize, the list below explains the queries created:

- **STATE_FACILITIES** – Facility information for the state of Nebraska from EMAAR.
- **LARGE_FACILITIES** – Unit information for facilities in Nebraska over 50,000 gross training square feet from the FORCE_FIL and EMAAR databases.
- **NE_WORK_ORDERS** – Data concerning the description and status of work orders for Nebraska.

These queries may now be used in Excel to produce reports for Congressman Snort.

Scenario, Practical Exercise

In the following practical exercise, you will develop three additional reports. The practical exercise will demonstrate how the *Data Bridge* and *Excel* complement each other for query and report generation. The following reports will be created:

- FACLIST – contains facility information
- ARRJACCT – contains 2002 ARR J account RISER information
- ARRJEST – contains 2002 ARR H EST account estimate RISER information

Create a Facility List Report

Create the Facility List Query in the Data Bridge:

1. Select the ***Query*** menu option from the menu bar and select ***New*** or press ***New*** on the toolbar button. After selecting the ***New*** query option, the ***Untitled*** dialog displays.
2. Select ***fac_id*** as the key field from the ***Key Field*** drop down box.
3. The ***Relationship Found*** window appears if there is an entry in the relationship table.
4. Click ***No*** to select fields only from the tables entered using ***fac_id*** as the Key Column.
5. The columns from the databases entered using ***fac_id*** as the Key Field are displayed in the ***Field Descriptions*** list box and the field selected defaults to the ***Selected Columns*** list box.
6. Select the following fields:

Field Name	Table Name
fac_title	fac_id (complex)
fac_street	fac_id (complex)
fac_city	fac_id (complex)
fac_state	fac_id (complex)
fac_zip	fac_id (complex)
Ifs_sf_total	fac_id (complex)

7. Click the ***Where Clause*** button from the ***Query*** dialog.
8. The ***Where Criteria*** dialog displays. This dialog is used to develop the filter criteria.

9. Within the ***Where Criteria*** dialog, select ***fac_state*** from the ***Variable/Field*** drop down box.
10. Select the equal sign **(=)** from the ***Operator*** drop down box.
11. Enter any 2 character state abbreviation in the ***Value*** box.
12. Click the ***Add*** button, and then click ***OK***.
32. Press the ***Run*** button from the toolbar.
33. The ***View/Edit Untitled Result Data*** dialog appears with the results of the query.
34. Launch Excel to obtain a copy of the report in a standard format.
35. Click ***Save***. The ***Save Query and Data*** dialog will appear.
36. Check the ***Save Query Information*** check box and name the query.
37. Select an access level from the drop down box.
38. Select ***FPS Reports*** from the ***ODBC Profile*** drop down box.
39. Enter ***FAC_LIST*** in the ***Table Name*** box.
40. Click ***Save***.

Using the Data Bridge Wizard to Build Queries

The following exercises should be completed using the *Data Bridge Wizard*. Now that you are familiar with the background operation of the *Data Bridge*, use those skills to manipulate the Wizard.

Create a report containing 2002 ARR J account RISER information

1. Create a query in the *Data Bridge* containing 2002 ARR J account RISER Information.
2. Include the following fields in the report:
   - ***fac_id***
   - ***wo_id***
   - ***wo_desc***
   - ***sdn***
   - ***commit_dt***
   - ***commit_amt***
   - ***acctg_desc***
   - ***cmt1***
   - ***cmt2***
   - ***cmt3***
   - ***est_desc***
   - ***apc_cd***
   - ***eor_cd***

Create a report containing 2002 ARR H account RISER information

1. Create a query in the *Data Bridge* containing 2002 ARR H account RISER Information.
2. Include the following fields in the report:
   - ***fac_id***
   - ***wo_id***
   - ***wo_desc***
   - ***cwe***
   - ***total_commit***
   - ***est_desc***
   - ***tdac_cd***

Conclusion

You have now created three additional reports. The *Data Bridge* allows you to query multiple databases simultaneously and save those queries as DBF files. You can then bring those queries into Excel to create reports for presentation.

To summarize, you have created the following reports for your CG using the *Data Bridge* and Excel:

- FACLIST – contains facility information
- ARRJACCT – contains 2002 ARR J account RISER information
- ARRJEST – contains 2002 ARR H account estimate RISER information

Please contact the Engineer Automation Support Desk at **1-800-557-4737** for any technical support or training questions.

Section IV

PlanView

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Objectives

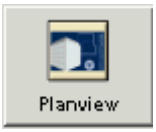
PlanView displays the site and floor plans of facilities in *FPS*. For *PlanView* to display a specific site or floor plan, *PlanView* must know the directory location of the plans. In addition, the site and floor plans must be registered within *PlanView*.

PlanView can be activated from within the *FPS* module. Users activate *PlanView* by using a menu option or by pressing F6. *PlanView* opens and displays the site or floor plan for the selected facility. *PlanView* can also be activated standalone from the ARGISS 8.1 program group.

The following objectives will be discussed in the *PlanView* section:

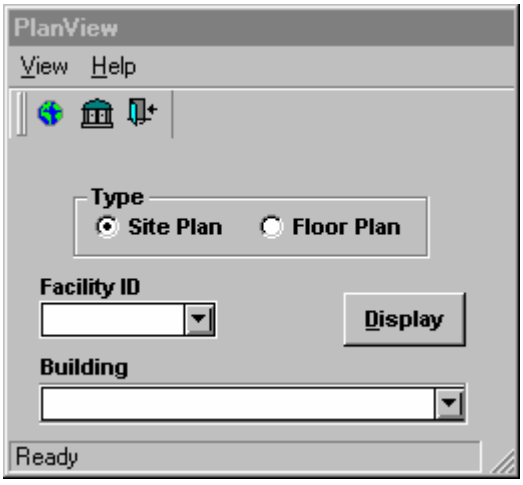
- Accessing *PlanView*
- Displaying the *MapInfo* Window
- Displaying the *PlanView* Window
- Registering Site and Floor Plans
- Viewing Site and Floor Plans
- Creating a Thematic Map

Accessing PlanView

To open *PlanView* select 

from the ARGISS Application Group.

The program launches MapInfo, and the PlanView dialog displays.

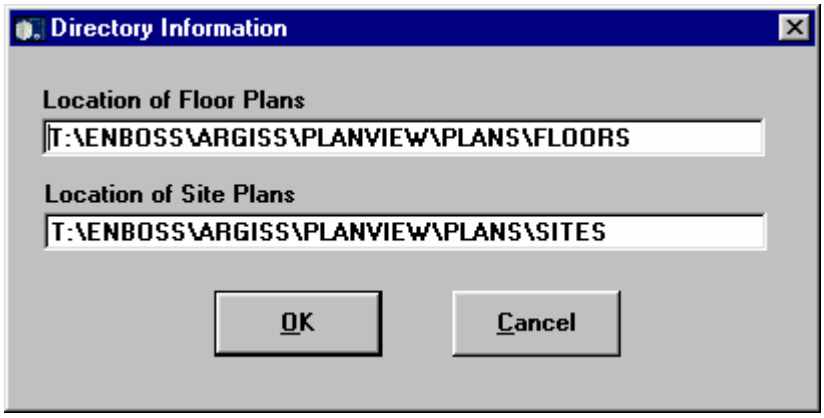


Viewing Directory Information

The *Directory Information* window informs the user where the site and floor plans are stored. To view directory information:

1. Select ***View > Directory Information***. The *Directory Information* dialog displays containing the:

- Location of Floor Plans - directory path of the floor plans to be displayed in *PlanView*
- Location of Site Plans - directory path of the site plans to be displayed in *PlanView*



The location of these fields can be changed by clicking in the field you want to change and entering a new path.

Displaying the MapInfo Window

If the *MapInfo* window minimizes or disappears while *PlanView* is running:

1. Select the ***View*** menu option from the *PlanView* menu bar and select ***Map Window*** or press ***F6***.

This will display the *MapInfo* window.

Displaying the PlanView Window

If the *PlanView* window minimizes or disappears while *PlanView* is running:

1. Select the ***Options*** menu option from the *MapInfo* menu bar.
2. Select ***PlanView Window***.
3. Or press the ***F6*** key.

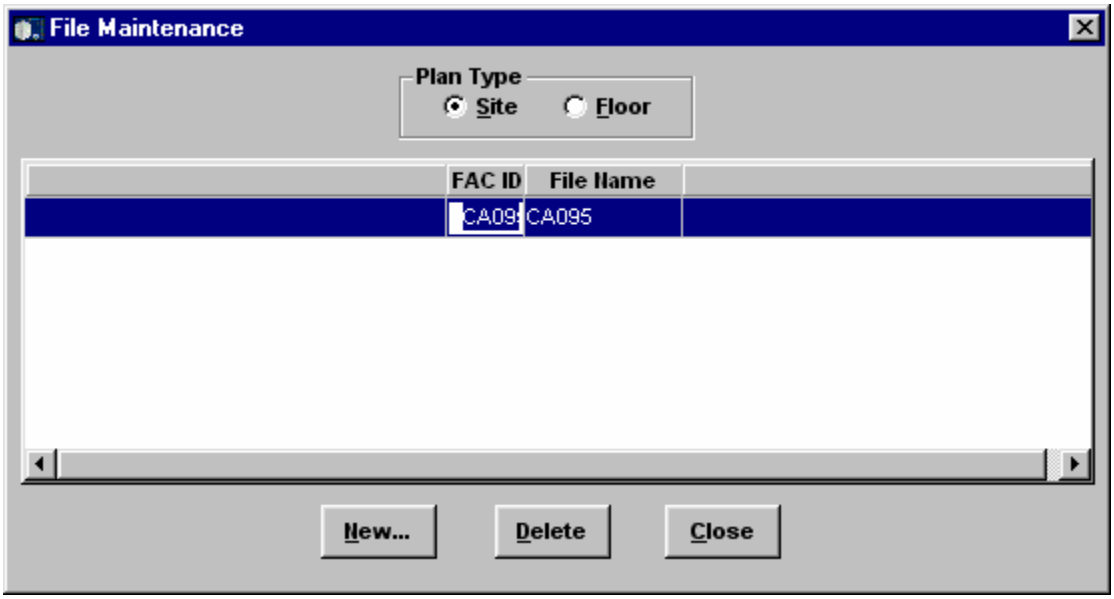
This will display the *PlanView* window.

Registering a Site Plan

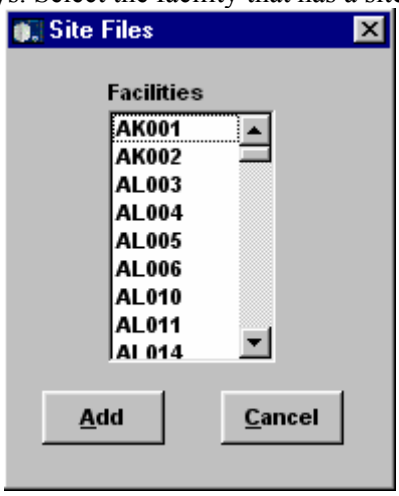
Once a site plan is in *MapInfo* format, it needs to be registered in the *PlanView* system before it can be displayed.

To register a site plan:

1. Select ***View > File Maintenance*** from the *PlanView* menu bar or click the ***File Maintenance*** button .
2. The *File Maintenance* dialog displays with a list of all the site plans that have already been registered.



3. Click ***New*** on the *File Maintenance* dialog.
4. The *Site Files* dialog displays. Select the facility that has a site plan to be registered in *PlanView.*



5. Click ***Add***. The added facility will now display in the *File Maintenance* window.
6. Type in the correct *File Name* for the digitized site plan. The standard site plan file names are 6 characters in length. Example: Fac_id + "S" = AR010S
7. Once all the site plans have been entered into *File Maintenance*, click ***Close*** and save the changes.

Deleting Site Plans

To delete a site plan:

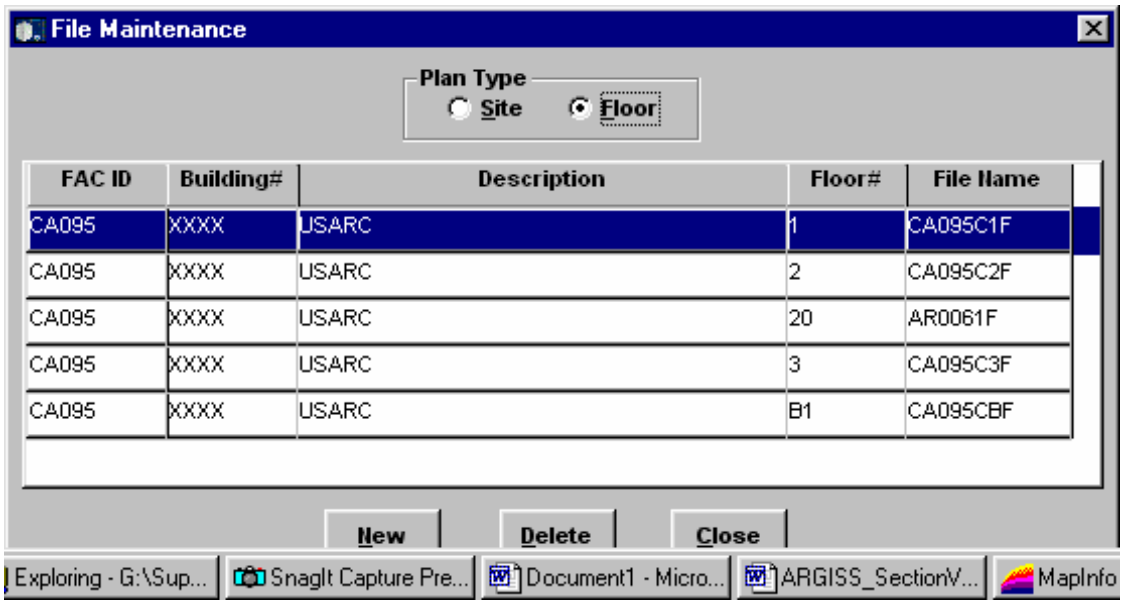
1. Select the ***facility site plan*** from the *File Maintenance* window to be deleted from *PlanView.*
2. Click the ***Delete*** button.
3. The ***Delete Alert*** window will display. Click ***Yes*** to delete the site plan.

Registering a Floor Plan

Once a floor plan is in *MapInfo* format, it needs to be registered in the *PlanView* system before it can be viewed. A floor plan cannot be registered in *PlanView* unless its corresponding site plan has already been registered.

To register a floor plan:

1. Select ***View > File Maintenance*** from the ***PlanView*** menu bar or press the ***File Maintenance*** button . The *File Maintenance* dialog displays.
2. Select the ***Floor*** radio button under *Plan Type.* A list of all the floor plans that have already been registered in *PlanView* display.
3. Click ***New***.
4. A new row is inserted and highlighted in the *File Maintenance* dialog.



5. Enter the values for the ***FAC ID, Building#, Description, Floor# and File Name.***

The file naming convention for floor plans is:

Fac_id + one character abbreviation for building type + floor number + F
Example: AR002 + C + 1 + F = AR002C1F.

Building abbreviations are:

- C = Main USARC Center
- A = AMSA
- O = OMS
- S = Storage
- M = Mixed

6. Once all of the information has been entered into *File Maintenance*, the floor plan can be displayed.

Deleting a Floor Plan

To delete a floor plan:

1. Select the facility floor plan to be deleted from ***PlanView***.
2. Click the ***Delete*** button.
3. The ***Delete Alert*** window appears.
4. Click ***Yes*** to delete the floor plan or click ***No*** to cancel.

Viewing a Site Plan

To view a site plan:

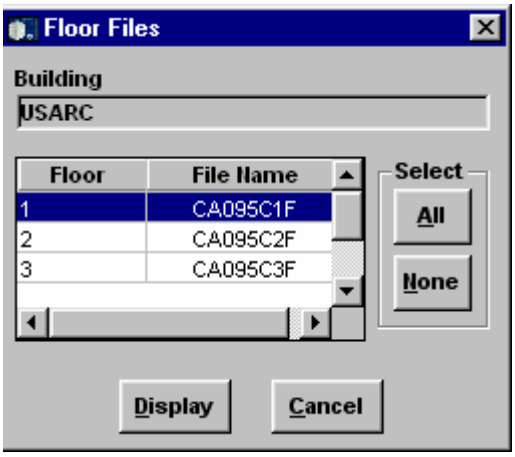
1. Select the ***Site Plan*** radio button under ***Type*** on the *PlanView* dialog.
2. Select the *Facility ID*.
3. Click ***Display***.

The site plan for the facility chosen displays.

Viewing a Floor Plan

To view a floor plan:

1. Select the ***Floor Plan*** radio button under ***Type*** on the ***PlanView*** dialog.
2. Select the *Facility ID* that the floor belongs to.
3. Click on the ***Building*** drop down box and select the building to be displayed.
4. Click the ***Select*** button. The *Floor Files* dialog displays.

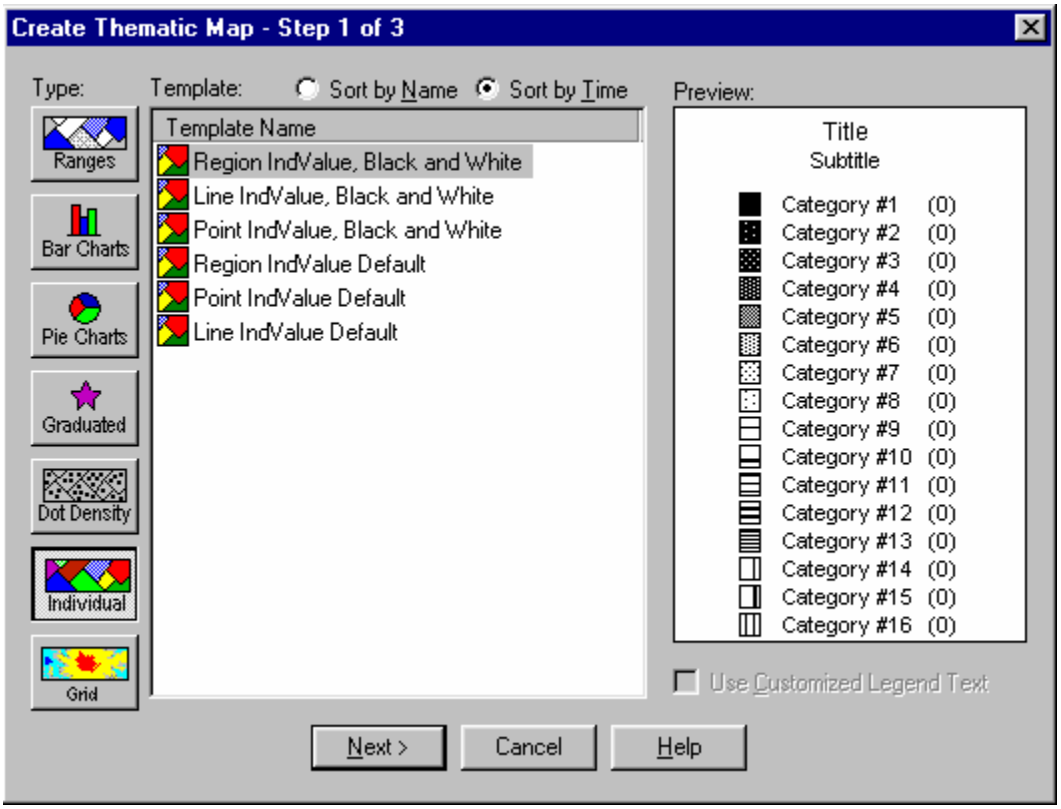


5. Select the layer(s) to be displayed on the floor plan and click ***Display***.
6. The floor plan for the selected facility and building will be displayed.

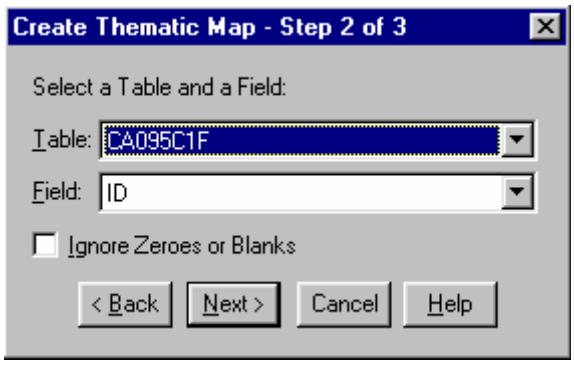
Creating a Thematic Map

To create a thematic map:

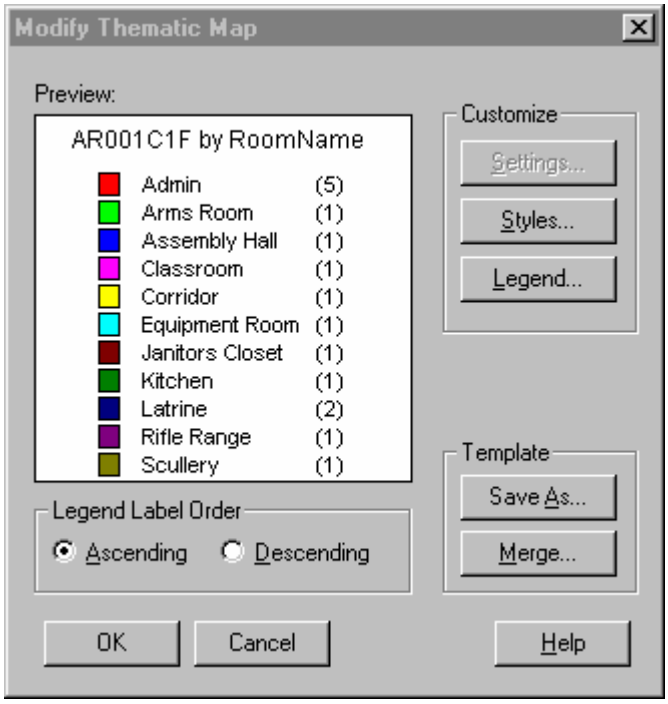
1. Select the ***Map*** menu from the *MapInfo* menu bar.
2. Select ***Create Thematic Map***.



3. Click the ***Individual*** button, and select ***Region IndValue Default***.
4. Click ***Next***.
5. Select the table that contains the floor plan and a field to create a thematic map with.



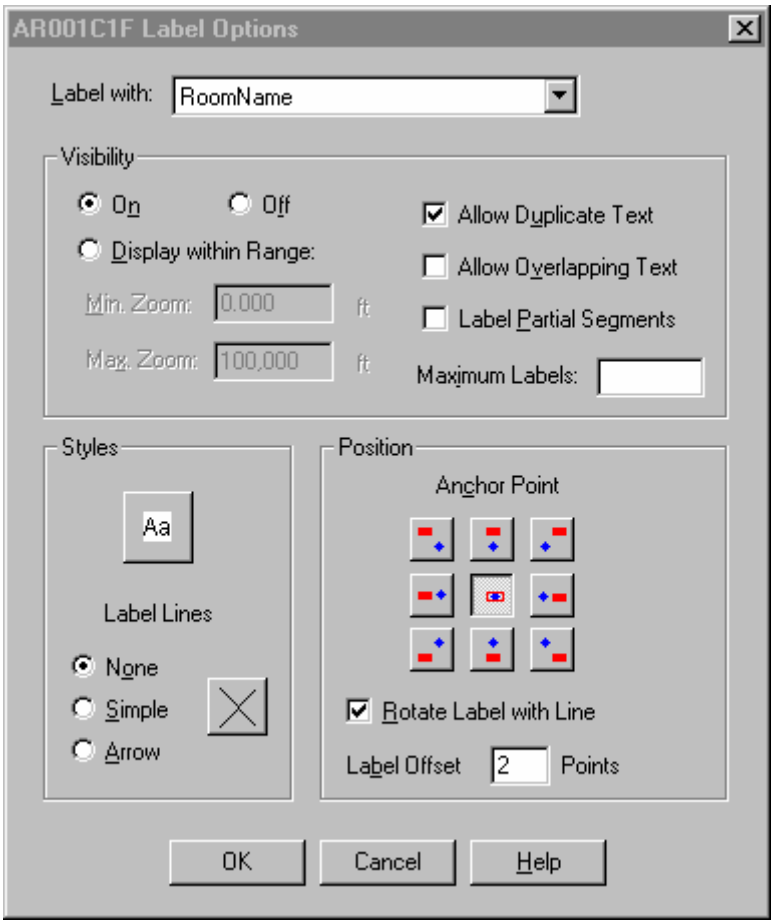
6. Change the legend and styles options as desired and click ***OK***.



The different rooms are displayed thematically using different colors.

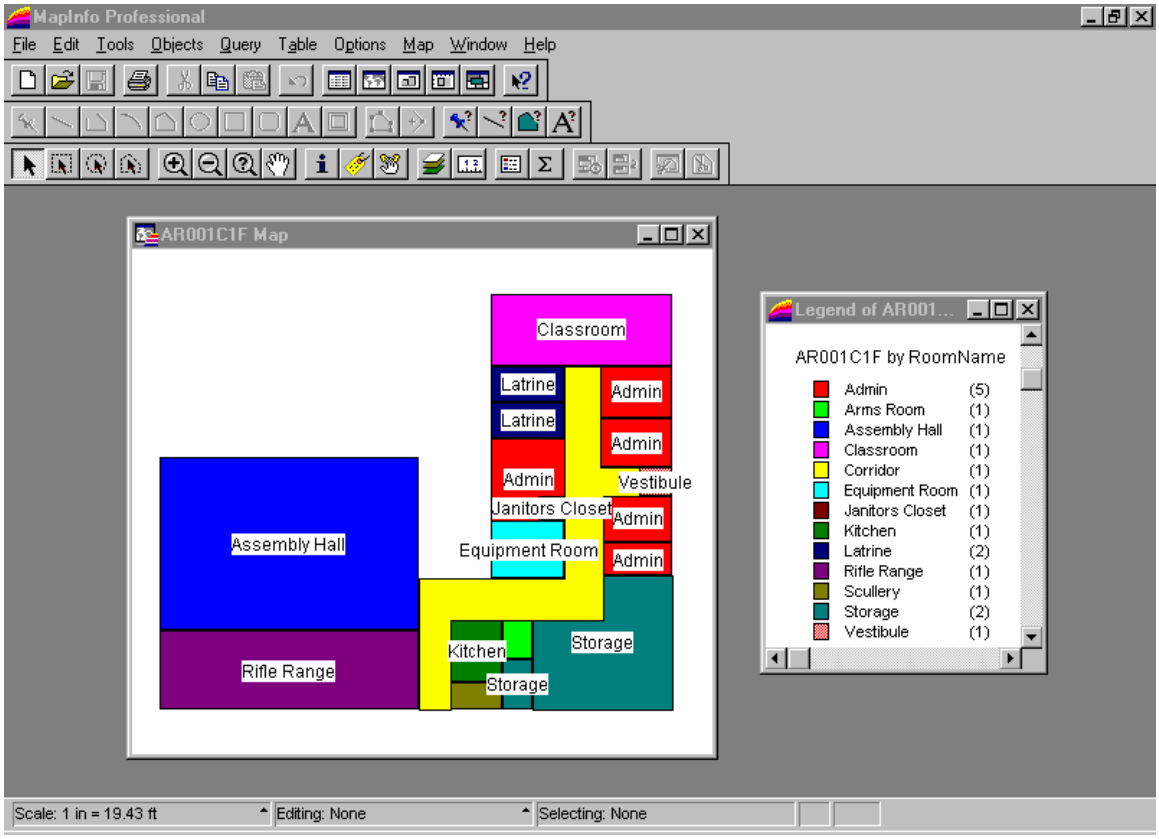
Labeling Room Names

1. Click on the ***Layer Control*** button in the main toolbar.
2. Check the ***AutoLabel*** check box for the floor plan layer, and click the ***Label*** button.



3. Label the plan with the ***RoomName*** and add a box around the name through the *Styles* button.
4. Click ***OK***, and ***OK*** again in the *Layer Control* window.

MapInfo automatically redraws all of the room names for the floor plan displayed.



Opening PlanView's On-Line Help

The *Help* menu provides access to the on-line help for *PlanView. On-line Help* offers the complete *ARGISS* User Manual.

Exiting PlanView

To exit *PlanView:*

1. Select the ***View*** menu option from the ***PlanView*** menu bar and select ***Exit***.
2. Or press the ***Exit*** button .

PlanView

Practical Exercise

Scenario

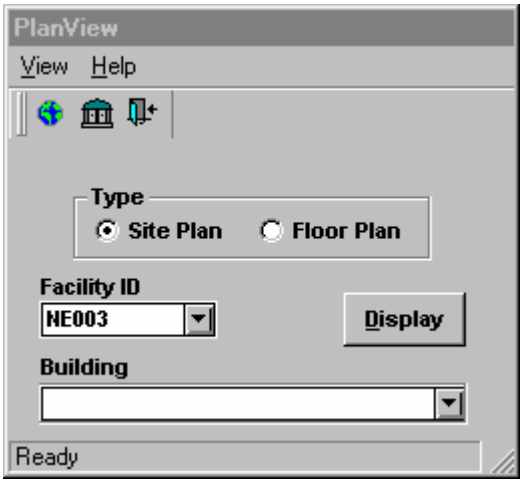
Using the *PlanView* module, create a site plan, floor plan and a thematic map for NE003. Label the floor plan's rooms and add a title to the site plan. Add the site plan, floor plan and thematic map to a layout window and print the layout.

Also, register your assigned site plan and a floor plan into the *PlanView* system. Only one person at a time can register a site or floor plan; therefore, you may receive a message stating someone else is maintaining the *PlanView* table. Wait a few minutes and try again.

View a Site Map

1. Launch the ***PlanView*** module by selecting

from the ARGISS Application Group.
2. Click the ***Site Plan*** radio button.
3. Select ***NE003*** as the facility id.
4.



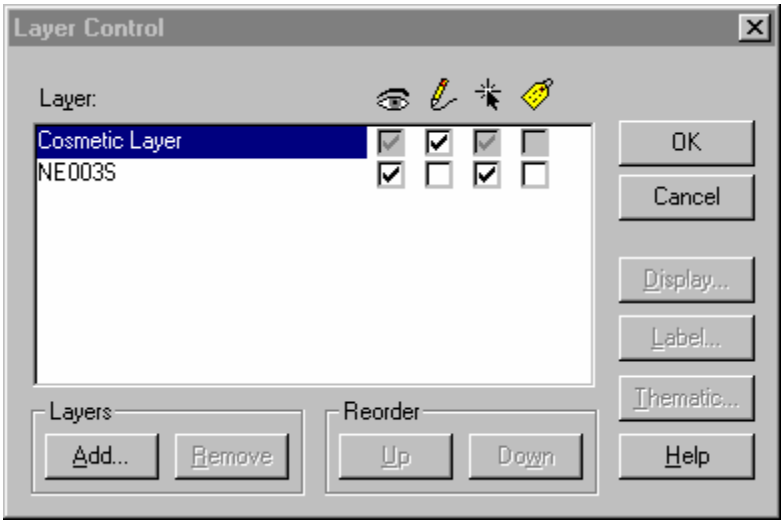
5. Click ***Display***.

The site plan of NE003 is displayed.

Add a Title to the Site Plan

Using the skills you have learned earlier add a title to the site map:

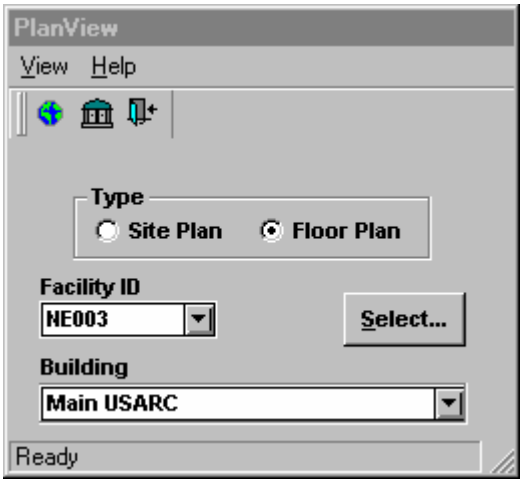
1. Click the ***Layer Control*** button .
2. Highlight the ***Cosmetic*** *Layer*.
3. Check the ***Editable*** check box for the ***Cosmetic Layer***.



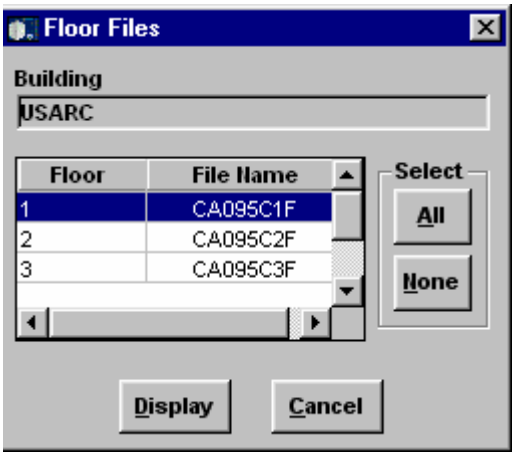
4. Click ***OK***.
5. Select the ***Text*** tool from the ***Drawing*** toolbar.
6. Position the cursor on the map, click the left mouse button and type a title.

View a Floor Plan

1. Press ***F6*** or select ***Options > PlanView Window*** from the ***MapInfo*** menu bar.
2. Select the ***Floor Plan*** radio button under ***Type*** on the ***PlanView*** window.
3. Select ***NE003*** as the Facility ID under the ***Facility ID*** drop down box.
4. Click on the ***Building*** drop down box and select ***NE003 - Main USARC*** as the building to be displayed.



5. Click the ***Select*** button. The ***Floor Files*** window displays.

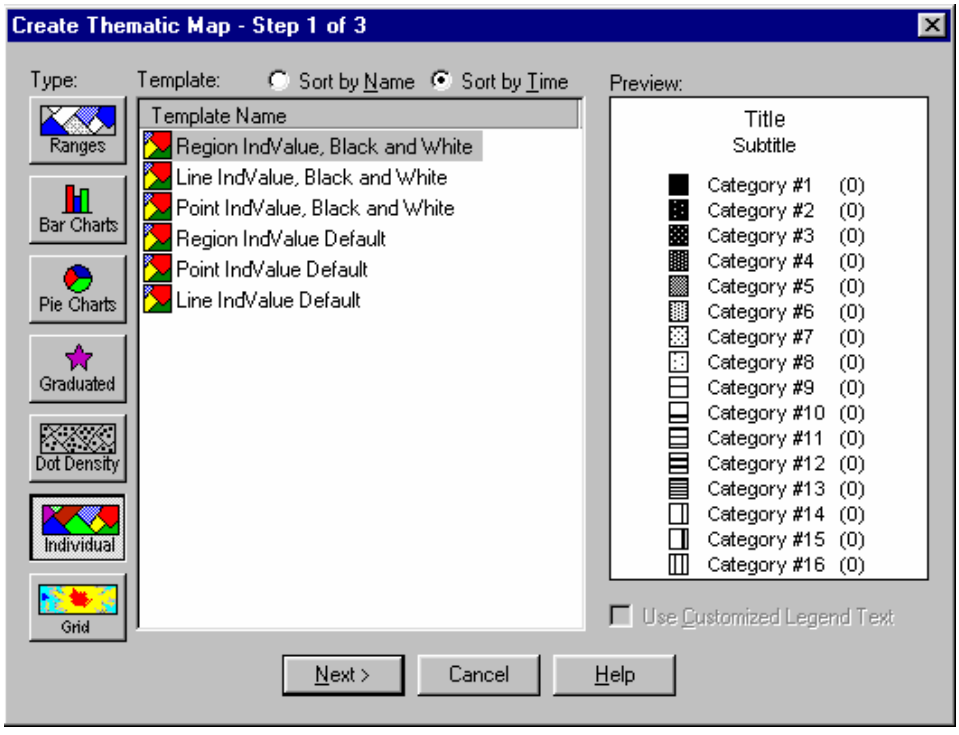


6. Highlight the floor to be displayed.
7. Click ***Display***.

The floor plan for the NE003 main USAR Center will be displayed. You should now have the site and floor plan as map windows.

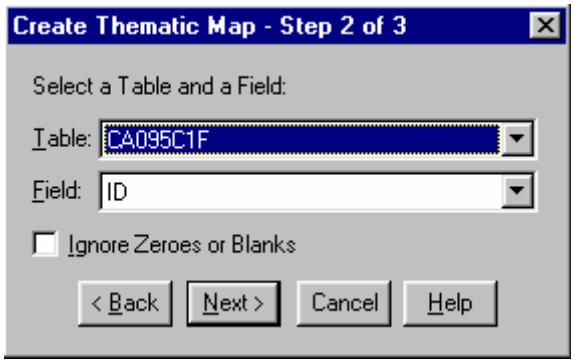
Create a Thematic Map

1. Select the ***Map*** menu from the ***MapInfo*** menu bar.
2. Select ***Create Thematic Map***.



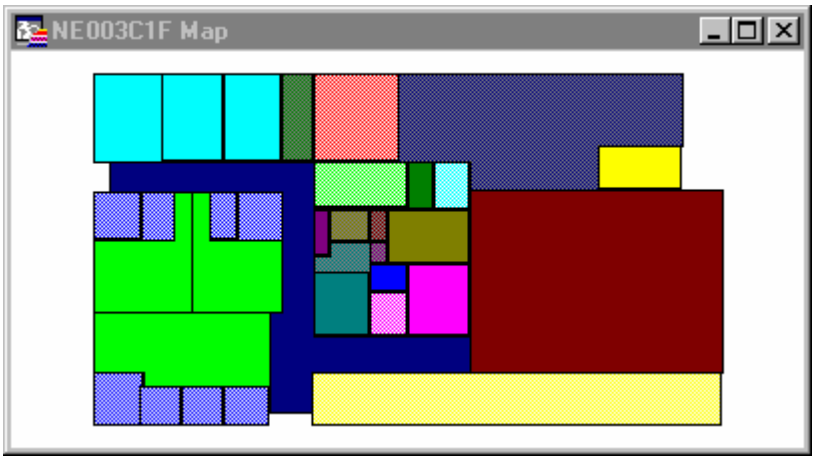
3. Click the ***Individual*** button, and select ***Region IndValue Default***.
4. Click ***Next***.

5. Select ***NE003C1F*** as the table.
6. Select ***RoomName*** as the field to create a thematic map with.



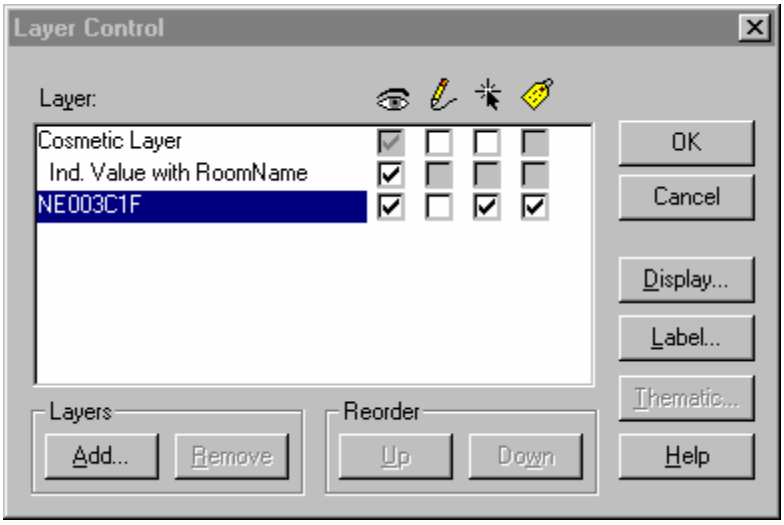
7. Click ***Next***.
8. Change the legend and styles options if desired.
9. Click ***OK***.

The different rooms are displayed thematically using different colors.

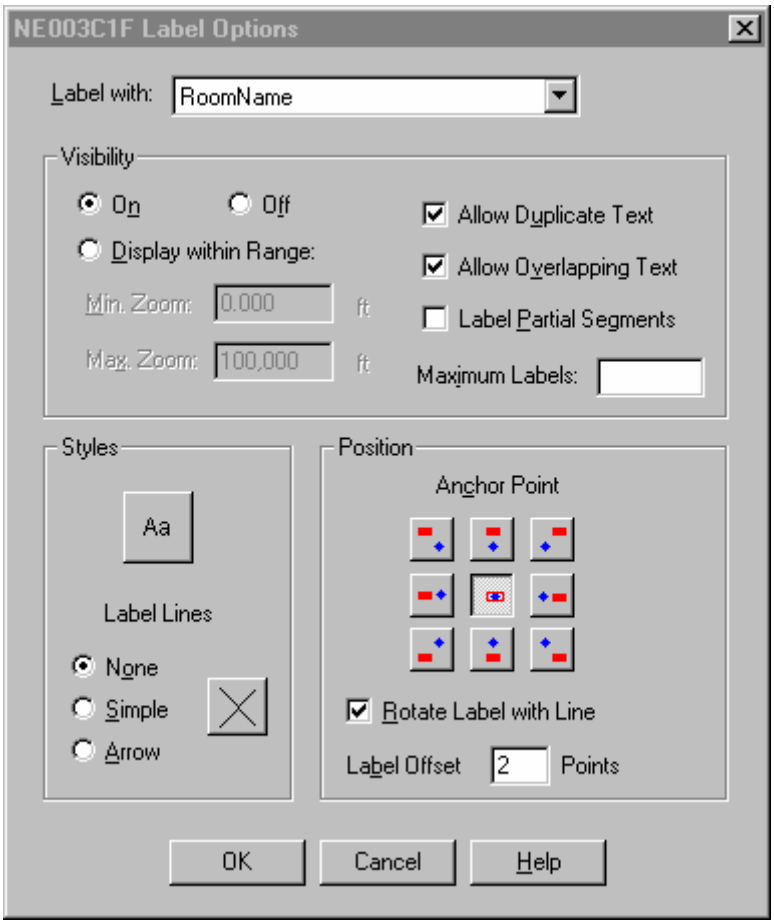


Label the Room Names

1. Click on the ***Layer Control*** button from the ***Main*** toolbar.
2. Check the ***AutoLabel*** check box for the ***NE003C1F***.



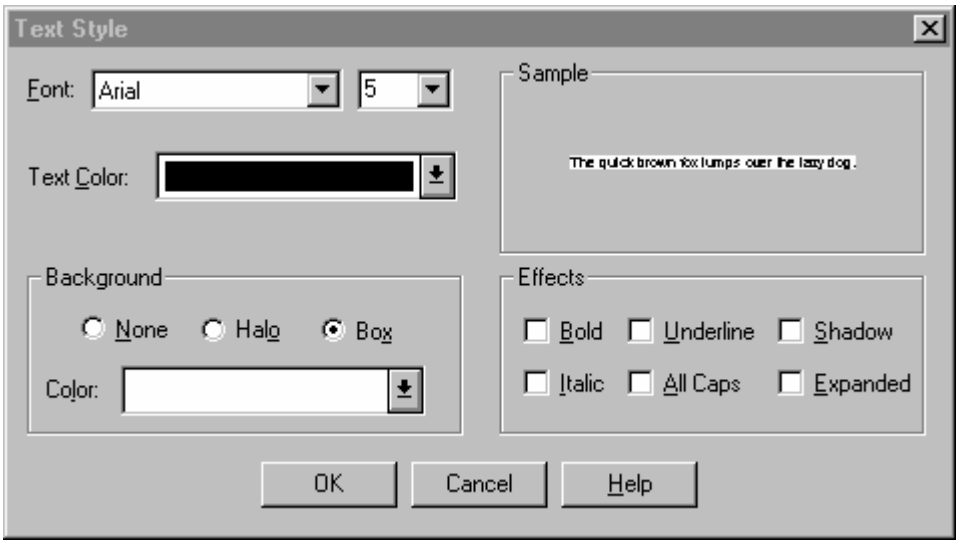
3. Click the ***Label*** button.



4. Select ***RoomName*** as the field to label with.
5. Check the ***Allow Overlapping Text*** check box.

6. Click the ***Styles*** button

to change the font size of the text.

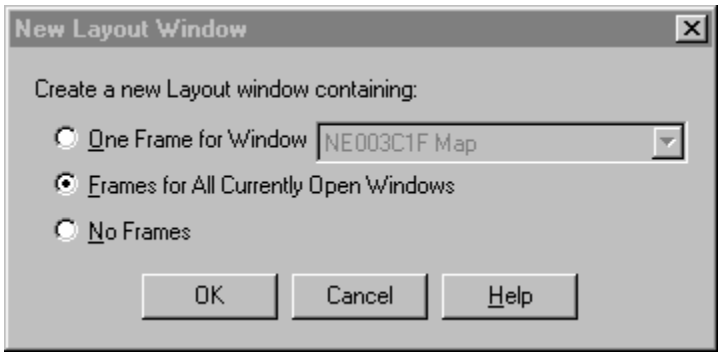


7. Change the font size to **5** point.
8. Click the ***Box*** radio button under *Background*.
9. Click ***OK***.
10. Click ***OK*** from the ***Layer Control*** window.

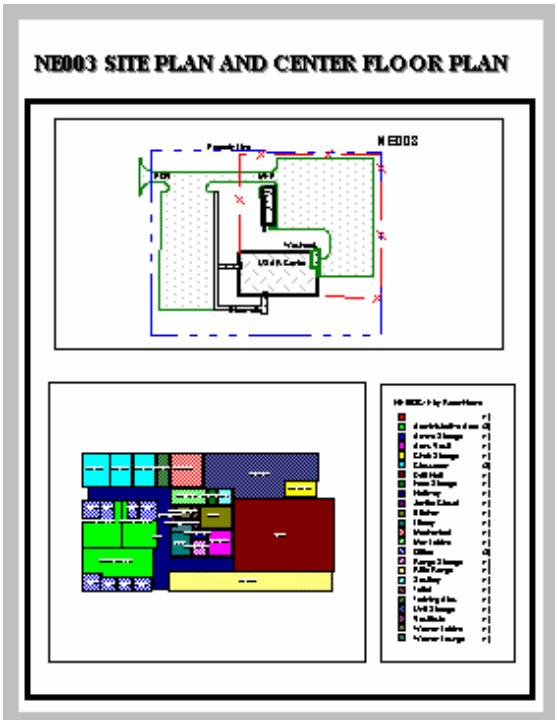
MapInfo automatically draws all of the room names for the floor plan displayed.

Add Site, Floor and Thematic Maps to a Layout

1. Select ***Window > New Layout Window***.
2. Select the ***Frames for All Currently Open Windows*** radio button.



3. Click ***OK***. A layout window is displayed.
4. Arrange and resize the windows in the layout.
5. Select ***File > Print*** to print the layout.



6. Save the windows to a workspace by selecting ***File > Save Workspace***. Save the workspace as *NE003.WOR* to the *C:\Program Files\ENBOSS\ARGISS\FPS\DATA* directory.
7. Select ***File > Close All.***

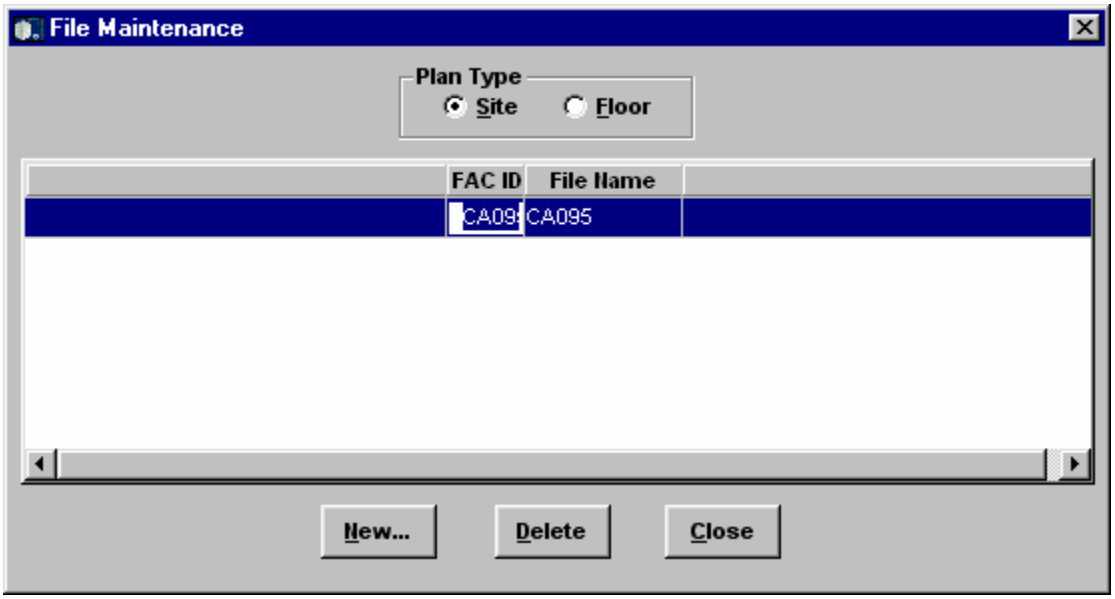
Register a Site Plan

You will now register a site and floor plan into *PlanView*. Use the table below to determine the site and floor plan assigned to you.

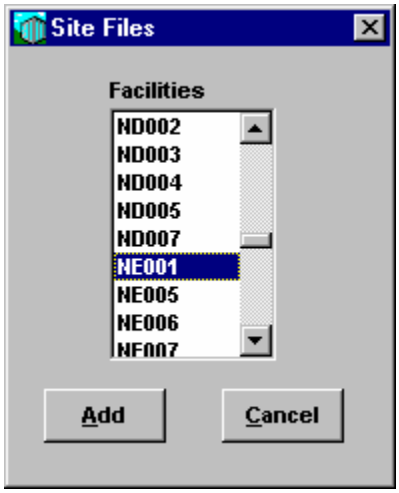
Student#	FAC ID	Site Plan Name	Floor Plan Name
Student1	NE001	NE001S	NE001C1F
Student2	NE005	NE005S	NE005C1F
Student3	NE006	NE006S	NE006C1F
Student4	NE007	NE007S	NE007C1F
Student5	NE008	NE008S	NE008C1F
Student6	NE009	NE009S	NE009C1F
Student7	NE010	NE010S	NE010C1F
Student8	NE011	NE011S	NE011C1F

Register the site and floor plan that is assigned to you:

1. Select ***Options > PlanView Window*** from the menu bar.
2. Select ***View > File Maintenance*** from the menu bar or select the ***File Maintenance*** button .
3. The ***File Maintenance*** window displays with a list of all the site plans that have already been registered.



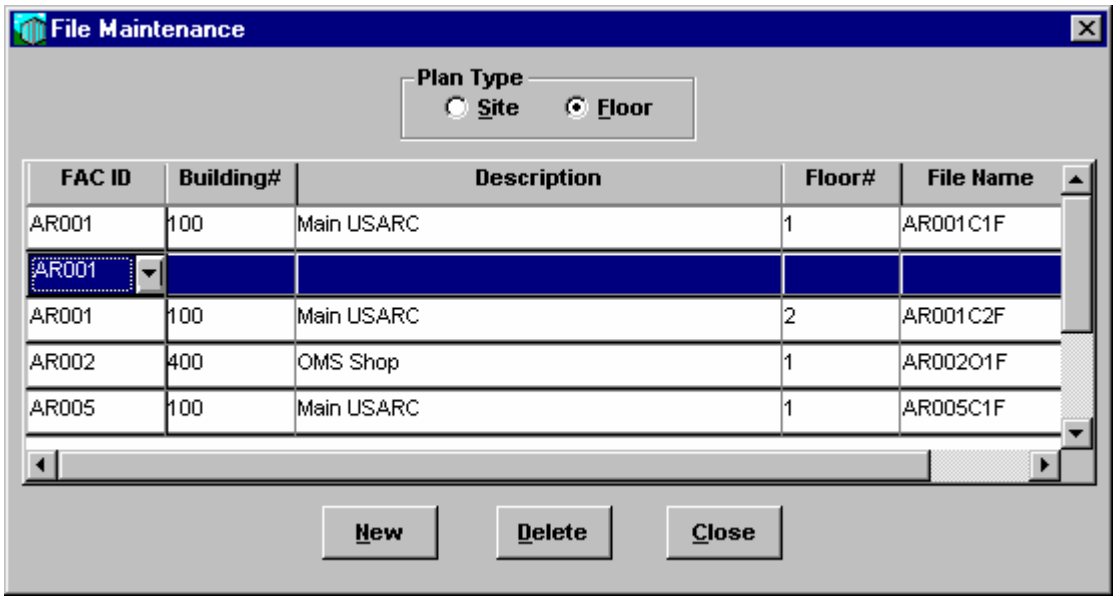
4. Click the ***New*** button on the ***File Maintenance*** window.
5. The ***Site Files*** window displays. Highlight the facility that has been assigned to you.



6. Click ***Add***. The added facility will now display in the ***File Maintenance*** window.
7. Type in the correct ***File Name*** for the digitized site plan. The standard site plan file names are 6 characters in length.
8. Example: Fac_id + "S" NE001S
9. Once the site plan has been entered into ***File Maintenance***, click ***Close*** and save the changes.

Register a Floor Plan

1. Select ***View > File Maintenance*** from the ***PlanView*** menu bar or press the ***File Maintenance*** button . The ***File Maintenance*** window displays.
2. Select the ***Floor*** radio button under ***Plan Type***. A list of all the floor plans that have already been registered in ***PlanView*** display.
3. Click ***New***.
4. A new row is inserted and highlighted in the ***File Maintenance*** window.



5. Enter your assigned Fac_id in the ***Fac_id*** drop down box.
6. Enter 100 in the ***Building #*** box.
7. Enter a description in the ***Description*** box.
8. Enter **1** in the ***Floor #*** box.
9. Enter the file name in the ***File Name*** box.
10. Once all of the information has been entered into ***File Maintenance***, click ***Close***.

The floor plan can be now be displayed using *PlanView*.

Conclusion

PlanView is a very powerful automation tool that allows the user to quickly view and register site and floor plans. The system also provides for full *MapInfo* functionality. The system can be used by novice as well as experienced *MapInfo* users.

To summarize you created the following map and workspace:

- **NE003** - layout window of NE003 site plan and a thematic map of the main USAR center 1st floor plan labeled by room name

The saved workspace will be used in the Conclusions and Overview Section.

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Appendix A

Geographic Data Sources

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Geographic Data Sources

There are many resources available that provide geographical data that can be either opened directly in *MapInfo Professional* or translated into *MapInfo Professional*. The following is a list of available resources in this Appendix:

- Internet
- MapInfo Professional
- Federal Government Agencies
- State and Local Governments and Universities
- Military Agencies
- Private Resellers

This is not a complete list of available geographical data. Most of the data will also need to be translated into a file format that MapInfo Professional can read. The following is a list of the formats MapInfo will open directly:

- DBF (dBASE)
- WK1 (Lotus 1-2-3)
- XLS (Microsoft Excel)
- TXT (Delimited ASCII)
- Raster Images
    - BIL (SPOT satellite images)
    - BMP (Windows Bitmap)
    - GIF (Graphics Interchange Format)
    - JPG (JPG)
    - PCX (ZSoft Paintbrush)
    - TGA (Targa)
    - TIF (Tagged Image File Format)

MapInfo can import the following formats:

- MIF (MapInfo Interchange Format)
- DXF (AutoCad)
- MBI (MapInfo Boundary Interchange)
- MMI (MapInfo Mapfile Interchange)
- IMG (MapInfo DOS Image)

If you need to import a MicroStation file, convert the DGN file to a DXF file which can be imported into *MapInfo*. Remember when importing files into *MapInfo*, the images will need to be cleaned up after the import and some information will be lost during the translation.

Internet

The Internet is an excellent way to research what types of geographical data is available, what format it comes in, what the cost is, etc. The following is a list of some web sites that will get you started:

- CIA World FactBook 1995 - High and low resolution maps on countries from A-Z http://www.odci.gov/cia/publications/95fact/index.html#r1
- Census Data - Detailed maps can be created for places in the US after entering a name, state, or zip code http://tiger.census.gov/cgi-bin/gazetteer
- GIS Baltic Sea Drainage Basin Database - Arable land, country land cover, major grainage basin, pasture land, population density, wetlands, major city and major watershed boundary maps http://www.grida.no/baltic/htmls/maps.htm
- National Geospactial Data Clearinghouse - Wide rang of public domain maps everything from coal investigation to thematic maps http://nsdi.usgs.gov/nsdi/pages/maps.html
- One World Guide Local/World/Maps - City Net, Virtual Tourist II and world country maps http://www.denver.rti.net/guide/local/world/maps
- On-line Map Creation - Maps are created from north, south, east, and west boundaries, map projections, plot locations, plate boundaries, and other options http://www.aquarius.geomar.de/omc/amke_map.html
- US Geodata - Various public domain maps http://edcwww.cr.usgs.gov/doc/edchrome/ndcdb/ndcdb.html
- Interactive Marine Observations - Maps of marine, weather, and wave condition http://polar.wwb.noaa.gov/regional
- FGDC - Manual Federal Geographic Data Products - http://info.er.usgs.gov/fgdc-catalog/title.html
- United States Geological Survey - USGS environmental data and quadsheets http://www.usgs.gov

The list of available GIS data web sites is enormous. You can search using an internet browser and search on 'GIS data'. Thousands of possible sites will emerge. However, most of the larger sites, such as USGS and EPA, have pointers to the most popular sites. The larger, federal GIS sites will be discussed later in further detail.

MapInfo Professional

MapInfo Corporation, the makers of *MapInfo Professional*, has a substantial amount of data for sell in their Geographic Information Systems catalog. Maps retail from $300 - $10,000. MapInfo has a web site that has additional information and available data at http://www.mapinfo.com.

Federal Agencies

National Wetlands Inventory (NWI)

URL: http://nwi.fws.gov.
The National Wetlands Inventory (NWI) develops and disseminates biologically sound scientific information on the characteristics and extent of the Nation's wetland resources.. This data is available at no cost and can be downloaded from the NWI website -

United States Geological Survey (USGS)

URL: http://www.usgs.gov/USGSHome.html
The USGS website contains topics in geology, mapping, remote sensing and water resources. Multiple data types and formats can be accessed from this site. However, much of the data is not free and a processing charge is likely to be applied for the USGS data. The most important and useful data available include the following formats:

- DLG - digital line graphs
- DEM - digital elevation models
- DTM - digital terrain models
- USGS Quad Sheets - 1:12,000, 1:24,000, 1:100,000, and 1:250,000 scale maps
- DOQ - digital orthoquads.
- Satellite Imagery - multiple satellite imagery including SPOT and LandSat imagery.

Federal Emergency Management Agency (FEMA)

URL: http://www.fema.gov/
This site contains a wide range of flood plain and floodway maps and data. The data is extremely useful in determining if facilities or construction projects are located in a flood plain or flood way.

Environmental Protection Agency (EPA)

URL: http://www.epa.gov/
The EPA site contains multiple layers of GIS data ranging from air quality to endangered species. However, the data is sporadic on a state by state basis/

United States Census Bureau

URL: http://www.census.gov
This site contains invaluable demographic data derived from the latest census. Detailed demographic data, such as age, income, and race, can be accessed by an area as small as the block level. The data is very useful for master planning (i.e. trend analysis, traffic impacts, etc.) and recruiting analysis.

United States Fish and Wildlife Services (FWS)

URL: http://www.fws.gov/
The FWS site contains natural resource data related to the biological and forestry professions. The Soil Conservation Series soils maps can also be located at this site.

The above list of agencies is a small number of the major, available federal agencies that offer GIS data and products. These sites usually have pointers to other, more detailed GIS sites (i.e. USGS Earthquake GIS data web site).

State and Local Governments and Universities

Many local and state agencies and universities offer GIS data related to the functional area that the agency deals with. For example, your state department of transportation may have detailed GIS information on traffic or air quality. Local government agencies, such as the local city planning department, may have detailed land use and zoning information. Many academic institutions also maintain GIS clearinghouses. For example, the Georgia Institute of Technology maintains a GIS data clearinghouse for the state of Georgia. This is the best site to obtain free GIS data for the state of Georgia.

Academic institutions usually have web sites and the data can be accessed via the internet. Local and state agencies may or may not have a web site and you may have to order the data by phone or mail.

Military Agencies

GIS data can be obtained from military agencies such as the Corp of Engineers, National Imagery and Mapping Agency (NIMA), the Tri-Service Spatial Data Clearinghouse, and many active Army installations that operate a geographic information system.

- National Imagery and Mapping Agency - DOD agency involved in mapping and remote sensing activities. Develops and maintains the *Digital Chart of the World* data. Also serves as a repository of military installation CAD and GIS data.
- Tri - Service CADD/GIS Technology Center - This center is a multi-service vehicle to set standards and coordinate facilities CADD and GIS within the Department of Defense. It also promotes system integration and standards, including naming conventions, common GIS layers, standard symbology, databases, and analysis tools.

The Corp of Engineer district supporting your region may also have GIS data available, as well as that for active Army installations. Contact the appropriate personnel to determine the amount and range available, if any.

Private Resellers

There are multiple private resellers in the GIS market that have data available. We have mentioned some of the government agencies that offer free or very cheap GIS data over the internet. This data may be in raw format and considerable GIS knowledge or file translation packages may be needed to utilize the data. Private resellers offer turnkey products and data for a fee. The MapInfo website has a list of the larger private resellers of GIS data. To access the MapInfo website go to: http://www.mapinfo.com.

Conclusion

GIS data is available in a wide range of formats and types. A large amount of data is available at little or no cost. However, the data may need to be translated or processed to a format that MapInfo can use. Private resellers will package the data in the format requested by the purchaser. Please contact the ARGISS Help Desk for further information and guidance if purchasing GIS data contained within ARGISS.

Appendix B

ARGISS General Information

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Terms and Abbreviations

ARGISS Terms

ACSIM	Assistant Chief of Staff for Installation Management
AFRC	Armed Forces Reserve Center
AR	Army Reserve
ARGISS	Army Reserve Geographic Information Support System
ASF	Aviation Support Facility
ASR	Account Summary Report
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CPSR_C	Command Plan Stationing Report - Current
CPSR_P	Command Plan Stationing Report - Projected
CSR	Cost Summary Report
Data Bridge	Data management software developed for the ACSIM-AR
ECS	Equipment Concentration Site
EMAAR	Engineer Management Automation, Army Reserve
ENBOSS	Engineering and Base Operations Support System
FSR	Facility Summary Report
FYR	Future Year Plan Report
FPS	Facility Planning System
GRC	General Research Corporation
IM-AR	Installation Management Agency – Army Reserve
IMA-ARD	Installation Management Agency – Army Reserve Directorate
InfoMaker	Ad-hoc reporting tool developed by PowerSoft
LAND	Land
LSR	Lease Report
MACOM	Major Army Command
Maint	Maintenance Site
MapInfo	Mapping software developed by MapInfo Corporation
MBR	Maintenance Backlog By Tier Report
MUSARC	Major United States Army Reserve Command
OSR	Obligation Summary Report
PlanView	ARGISS Sites and Floor Plan system
PowerBuilder	Application development tool by PowerSoft
RSC/ARCOM	Regional Support Command / Army Reserve Command
RRC	Regional Readiness Command
RRSC	Regional Readiness Sustainment Command
SA	Systems Administrator
SAT	System Acceptance Test
SIR	System Incidence Report
SOW	Scope of Work
SQL	Structured Query Language
SRO	Smyrna Regional Office of CACI, Smyrna, GA
STORAGE	Storage Facility
TNG	Training site
UAT	User Acceptance Test
UIC	Unit Identification Code

USAR	United States Army Reserve
USARC	United States Army Reserve Command
USARC-DCSENG	United States Army Reserve Command, Deputy Chief of Staff Engineer

Microsoft Windows® Terms

Active Window	The window you are currently working with, or just selected. The active window is the topmost window.
Application	A computer program that performs a specific task, such as word processing.
Application Window	The primary window for an application. This window can contain multiple windows within it.
Check Box	A square box that appears within a dialog box, which contains an "X" when selected and is empty when deselected.
Command Menu	The large, square button with a horizontal bar that appears in the upper left hand corner of all windows. This menu allows you to: Restore, Resize, Minimize, Maximize, Close Window, and switch to another application.
Default Printer	The printer the Windows print manager automatically uses when the a print option is selected.
Desktop	The entire work environment where Windows displays all windows, icons, and additional dialog boxes.
Dialog Box	A box in which Windows prompts the user for a response.
Drop Down List Box	A single line list box that, when clicked, shows a list of defined choices.
Hot Key	A sequence of keys which select or execute menu options.
Icon	A graphical element representing a program or window.
Icon Ribbon	A horizontal bar, containing icons, which allows the user to select options in the current menu. The ribbon can be relocated or closed entirely.
LAN	Local Area Network
List Box	An information box that contains a list of choices. A list box can either be single select or multi-select.
Maximize Button	A small button in the upper right corner of a window containing an upward pointing arrow which will resize the window to fill the entire application window or the entire desktop.
Menu	A group of available commands in an application or specific window.
Menu Bar	A horizontal bar at the top of the application window which contains the menu options just beneath the main menu option.
MS DOS	Microsoft Disk Operating System
ODBC	Open Database Connectivity is a standard application programming interface developed by Microsoft. It allows a single application to access a variety of data sources for which ODBC-compliant drivers exist.
Radio Button	A circle, generally grouped within a box with other radio buttons, which can be toggled on or off. Only one radio button within a dialog can be activated at a time.
Restore Button	A small button in the upper right corner containing both an upward and downward arrow which will return a maximized window to its previous size.
Scroll Bar	A horizontal or vertical bar in a window, list box, or matrix which provides the capability to view information not currently in view.
Single Line Edit	See *Text Box*.

Status Bar	A bar at the bottom of the application window which provides information about the active application, window, or field.
Text Box	A dialog box which provides the capability to enter text.
Title Bar	A horizontal bar at the top of the application or window which contains the name of the application or window.
TrueType® Font	Windows fonts that print exactly as they appear on the screen.
Window	A rectangular area of the screen in which you can open an application or a part of an application.

FPS Map Legend Objects

#	Abbreviation	Description	Map Icon
1	AFRC	Armed Forces Reserve Center (Red)	
2	USARC	US Army Reserve Center (Blue)	
3	ASF	Aviation Support Facility	
4	ECS	Equipment Concentration Site	
5	MAINT	Maintenance Site	
6	TNG	Training Site	
7	LAND	Land	
8	STORAGE	Storage Facility	

External Systems Used by ARGISS

This document provides a list of tables and columns from other systems that are read by programs within ARGISS. The EMAAR table names and column names, data types, lengths, and descriptions have been copied from the EMAAR data dictionary.

EMAAR Columns Used by ARGISS

This section lists the EMAAR tables and columns used by ARGISS. These columns are used in the Create Application Data processes to generate the Reports for FPS. Any structure changes to them will also cause structure changes in the reports, the MapBasic code, and the PowerBuilder code.

COMPLEX - Facility Information

Column	Type	Length	Description
ACRES_ACT	Numeric	8, 2	Sum of existing number of acres for all Land Functional Activities attached to the facility.
CONG_DIST	Numeric	2, 0	The facility's Congressional District Number. Validate against the key code in the CONG table. Senator's names are pulled from the CONG table, which is maintained by CEHNC.
EXIST_SHOP	Numeric	7, 0	Sum of existing square feet for Maintenance Shops Area Maintenance Support Activity (AMSA), ground, Organization Maintenance Shop (OMS) and Joint OMS/AMSA at the facility.
EXIST_TNG	Numeric	9, 0	Sum of all Training Building Areas (Admin + Assem + Kit + Weap + Educ + Stor + Spc Trg + Supp Area) at facility.
EXISTING	Logical	1	Is this an existing Facility (T/F) contained in the USAR Real Property Inventory.
FAC_CITY	Character	23	Name of the City where Facility is Located.
FAC_ID	Character	5	Facility Identification Number.**-Issued via CEHNC ASSIGN Program.
FAC_STATE	Character	2	State in Which Facility is Located.
FAC_STREET	Character	30	Street Address of the Facility.
FAC_TITLE	Character	30	Full Title of the Facility.
FAC_ZIP	Character	10	Zip Code of the Facility.
FACIL_MGR	Character	15	Name of the Facility Manager.
FT_DAYS_PW	Numeric	1, 0	Number of days per week the facility is scheduled for full time personnel.
GR_SHOP_SF	Numeric	8, 0	Sum of all user entered gross square feet at the functional activity level for Shops (AMSA (G), OMS, & Joint OMS/AMSA) attached to facility.

Column	Type	Length	Description
GR_TNG_SF	Numeric	8, 0	Sum of all user entered gross square feet at the functional activity level for all Training Buildings attached to the facility.
INSNO_AC	Character	5	Installation Number assigned by Support Installation.
NO_EX_BLD	Numeric	3, 0	Number of existing buildings at the facility.
OFC_IN_CHG	Character	15	The Name of the Officer in Charge of the facility.
POC_PHONE	Character	10	Phone Number for the Officer in Charge of the facility.
RQ_TNG_SF	Numeric	7, 0	Gross Sq Ft Authorized for facility - Calculated only for Units Attached to the facility. The Utilization Report populates this field.
RS_NITS_PM	Numeric	1, 0	Number of nights per week the facility will be used by Reservists.
RSC	Character	20	Regional Support Center.

FYPDT - Future Year Plan (FYP) Information for both Field and Headquarters

Column	Type	Length	Description
ARCOM_PRI	Numeric	3, 0	Project Priority Assigned by the Regional Support Command/Army Reserve Command (RSC/ARCOM).
MACOM_PRI	Numeric	3, 0	Project Priority Assigned by the Major Army Command (MACOM).
MDEP	Character	4	Management Decision Package.
OCAR_PRI	Numeric	3, 0	Project Priority Assigned by the Office of the Chief, Army Reserve (OCAR).
PROJ_FY	Numeric	4, 0	Project Fiscal Year.
PROJ_NO	Character	5	Project Number.
READY_CAT	Character	4	Readiness Category. Used to identify the status of a project relative to its impact on readiness. Valid values are: IA, IB, IIA, IIB, IIIA, IIIB.

HQ_PROJ - Actual Level Project Files

Column	Type	Length	Description
FAC_ID	Character	5	Facility Identification Number.
PROJ_COST	Numeric	8,0	Total Cost of Project (In Thousands).
PROJ_NO	Character	5	Project Number.
PROJ_TITLE	Character	30	Title of Project.
TYPE_CONST	Character	1	Type of Construction. Valid values are: N for NEW, E for EXISTING, R for REPLACEMENT, M for MODERNIZATION.

INTEREST - Functional Activities for Facilities in the Real Estate Module

Column	Type	Length	Description
ABB_TYPE	Character	14	Abbreviation of available Functional Activities. Automatically populated from the FUN_ACTV database when an add is performed in Real Estate. Valid values are: AFRC (MB), AFRC (AB), AMSA (G), AMSA (M), AMSA S-S, AMSA (AB), USARC/Marine Facility, USARC/ASF (MB), USARC/ASF (AB), Hanger, Hanger (AB), DS/GS (MB), DS/GS (AB), ECS, Land, LTA, NCOA (MB), NCOA (AB), OMS (MB), OMS (AB), OMS/AMSA (MB), OMS/AMSA (AB), OMS/DS/GS (MB), OMS/DS/GS (AB), RTS - I, RTS - MT, RTS - MED, RTS (AB), Storage, USARC (MB), USARC (AB), OTHER, UNH. STORAGE, BPC
ANNL_COST	Numeric	8, 0	Annual Lease Cost. Used for LEASE Real Estate Type Only.
CONST_FY	Numeric	4, 0	Construction Fiscal Year. Used for Fee Real Estate Type Only.
DISP_EBS_C	Date	8	Date that Disposal Environmental Baseline Survey (EBS) was completed. Used for all Activities.
EFECT_DATE	Date	8	Effective Date of Permit, Lease, or Easement (For LEASE, EASEMENT or PERMIT Real Estate Type).
ENVDOCCOM1	Date	8	First Date of Environmental Document for the following: Record of Environmental Consideration (REC), Environmental Assessment (EA), Environmental Impact Statement (EIS), or (None) - Finding of No Significant Impact (FNSI) completion.
ENVDOCCOM2	Date	8	First Date of Environmental Document for the following: Record of Environmental Consideration (REC), Environmental Assessment (EA), Environmental Impact Statement (EIS), or (None) - Finding of No Significant Impact (FNSI) completion.
ENVDOCCOM3	Date	8	First Date of Environmental Document for the following: Record of Environmental Consideration (REC), Environmental Assessment (EA), Environmental Impact Statement (EIS), or (None) - Finding of No Significant Impact (FNSI) completion.

Column	Type	Length	Description
ENVDOCTYP1	Character	4	First Type of Environmental Document: Record of Environmental Consideration (REC), Environmental Assessment (EA), or Environmental Impact Statement (EIS) or Finding of No Significant Impact (None). Populated by popup menu.
ENVDOCTYP2	Character	4	First Type of Environmental Document: Record of Environmental Consideration (REC), Environmental Assessment (EA), or Environmental Impact Statement (EIS) or Finding of No Significant Impact (None). Populated by popup menu.
ENVDOCTYP3	Character	4	First Type of Environmental Document: Record of Environmental Consideration (REC), Environmental Assessment (EA), or Environmental Impact Statement (EIS) or Finding of No Significant Impact (None). Populated by popup menu.
EXPIR_DATE	Date	8	Expiration Date of Permit, Lease or Easement (For LEASE, PERMIT or EASEMENT Real Estate Type).
FA_INTREST	Character	8	Type of Real Estate Interest. Valid values are: FEE, LEASE, PERMIT, EASEMENT
FAC_IDSTR	Character	5	Facility Identification Number. Automatically populated when an Add is performed.
LEASE_NO	Character	21	USACE Lease Number. Used for LEASE Real Estate Type Only.
MOU_CAT	Numeric	2, 0	Memorandum of Understanding (MOU) Lease Category Number. Used for LEASE Real Estate Type Only.
WHATIF	Character	1	Is this Functional Activity Used for Planning? (Y/N)

UNITS - Unit Information

Column	Type	Length	Description
ASSTR_TOT	Numeric	6, 0	Total Unit assigned Reserve personnel (Used on DD Forms).
AUSTR_TOT	Numeric	6, 0	Total Unit authorized Reserve personnel (Officers plus Enlisted plus Warrant Officer).
DRC	Character	20	Name of Direct Reporting Command (DRC).
DRILL_WEND	Numeric	1, 0	Weekend of the Month, which Unit Drills.
FAC_ID	Character	5	Facility Identification Number where the Unit is located.
UIC	Character	6	Unit Identification Code.
UNIT_NAME	Character	25	Name of Unit.

RISER Columns Used by ARGISS

This section lists the RISER tables and columns used by ARGISS. These columns are used in the Create Application Data processes to generate the Reports for EPS and FPS. Any structure changes to them will also cause structure changes in the reports, the MapBasic code, and the PowerBuilder code.

RACCTGDT - Accounting Transaction Data

Column	Type	Length	Description
COMMIT_AMT	Numeric	11, 2	Amount Committed
FY	Numeric	4, 0	Fiscal Year
OBLIG_AMT	Numeric	11, 2	Amount Obligated
OBLIG_DT	Date	8	Obligation Date
WO_ID	Character	10	Work Order Identifier

RFNDGDDT - Funding Guidance Information

Column	Type	Length	Description
AFP	Float	14, 2	Annual Funding Plan Amount
AMS_CD	Character	11	Army Management Structure Code (AMSCO)

RPINFODT - Work Order Information

Column	Type	Length	Description
A106_PRJ	Character	15	A106 Environmental Project Number
APV_CD	Character	1	Approval Code
ARC_CD	Character	5	RSC, ARCOM, or other site which created the record
CWE_TOTAL	Numeric	12, 2	Estimated Cost Total
FAC_ID	Character	5	Facility Identifier
FNDS_CD	Character	1	Funding Status Code
FY	Numeric	4, 0	Program year for Work Order
MDEP_CD	Character	4	Primary Management Decision Execution Package (MDEP) Code
PRI_AMS	Character	1	Primary AMSCO - equivalent to Work Class (e.g., J, K, L)
PRJ_CD	Character	2	Project Status Code
TOT_COMIT	Numeric	12, 2	Total Committed Amount
WO_DESC	Character	30	Short Description
WO_ID	Character	10	Work Order Identifier

ITRR-GIS Columns Used by ARGISS

This section lists the ITRR-GIS tables and columns used by ARGISS . These columns are used in the Create Application Data processes to generate the Reports for FPS. Any structure changes to them will also cause structure changes in the reports, the MapBasic code, and the PowerBuilder code.

SIDPERS - Unit Information

Column	Type	Length	Description
ADDRESS	Character	29	Unit Address
ASGN	Numeric	6, 0	Number of soldier assigned to the unit
AUTH	Numeric	6, 0	Number of soldiers authorized for the unit
CITY	Character	17	City
CLOSE	Character	1	Indicates if unit is closing (‘Y’ or ‘N’)
DUTYQUAL	Numeric	6, 0	Number of qualified soldiers in the unit
EFF_DATE	Date	8	Effective Date
FAC_ID	Character	5	Facility Identification Code affiliated with unit
GAINS	Numeric	6, 0	Number of soldiers gained in the last year
LOSSES	Numeric	6, 0	Number of soldiers lost in the last year
MUSARC	Character	12	MUSARC Code
NAME	Character	30	Unit Name
PHONE	Character	10	Phone Number
PRIORITY	Character	1	Priority
REQ	Numeric	6, 0	Number of required soldiers for the unit
SRC	Character	7	Standard Requirements Code
STATE	Character	2	State
TIER	Character	4	Tier
UIC	Character	6	Unit Identification Code
VACS	Numeric	6, 0	Number of vacancies in the unit
ZIP	Character	5	Zip Code

EMM/ECATS Columns Used by ARGISS, these files are not been maintained by the functional community!

This section lists the EMM/ECATS tables and columns used by ARGISS . These columns are used in the Create Application Data processes to generate the Reports for FPS. Any structure changes to them will also cause structure changes in the reports, the MapBasic code, and the PowerBuilder code.

A106 - A106 Information

Column	Type	Length	Description
AGENCY	Character	4	Agency Bureau
ASSESS	Character	1	Project Assessment
BCODE_fy, where fy is 2-digit fiscal year (ex. BCODE_96)	Character	10	Agency Budget Code
CITY	Character	24	City Name
CLASS	Character	1	Class
COMD_PRIOR	Character	4	Command Priority
COMMAND	Character	10	Major Command
COMPLIANCE	Character	4	Compliance Status
CONTACT	Character	20	Point of Contact
COST	Float	10, 0	Total Cost
DERACODE	Character	5	DERA Priority Code
DPCMPLT	Character	6	Plan Completed
ECAT	Character	4	Environmental Category
ENTERED	Character	8	Date Entered
FACID	Character	5	EMAAR Facility ID
FINAL	Character	6	Final Compliance Required
FUND_DESC	Character	15	Funding Description
FUND_REQ	Float	4, 0	Fiscal Year Required
FUNDCODE	Float	2, 0	Fund Code
GEOINIT	Character	2	Geographical Initiative
NAME	Character	30	Installation Name (Renamed as “Inst_name” in ARGISS SQL Anywhere table, since “Name” is a reserved word in SQL Anywhere.)
INSTYPE	Character	20	Installation Type
LOC_PRIOR	Character	4	Local Priority
LOCALSITE	Character	10	Local Information
MULT_INST	Character	1	Multiple Installations
MUSTFUND	Character	1	Must Fund
NARR	Memo	10	Narrative

Column	Type	Length	Description
NPLA	Character	1	NPLA
OBL_fy, where fy is 2-digit fiscal year (ex. OBL_96)	Float	10, 0	Obligated
OP_UNIT	Character	3	Operable Unit
OTH_PROJID	Character	20	Other Project ID
OTHTYPE	Character	20	Other Project ID Type
OWNR	Character	4	Ownership Type
P2CAT	Character	3	P2CAT
PILLAR	Character	3	Pillar
PRG_fy, where fy is 2-digit fiscal year (ex. PRG_96)	Float	10, 0	Program/Budget
PROG_CODE	Character	1	Program Code
PROGRAM	Character	50	Program Area
PROJ_TYPE	Character	5	Project Type
PROJNAME	Character	50	Project Name
PROJNUM	Character	10	Project Number
PROPNUM	Character	5	Property Number
REASON_INI	Character	2	Reason Initiated
REG	Character	4	Law/Reg
REQ_96	Float	10, 0	Required
REQ_97	Float	10, 0	Required
REQ_98	Float	10, 0	Required
REQ_fy, where fy is 2-digit fiscal year (ex. REQ_96)	Float	10, 0	Required
REVISED	Character	8	Date Revised
STATE	Character	2	State
STREET	Character	30	Street Address
SUBCOM	Character	8	Subcommand
SUPPORT	Character	30	Support Installation
TELEPHONE	Character	12	POC Telephone
WORKSTART	Character	6	Construction/Work Start
ZIP	Character	9	Zip Code

ENFORCE - Enforcement Information

Column	Type	Length	Description
AGENCY_TY	Character	1	Pri. Enforcement Authority
ENF_STATUS	Character	1	Status
FACID	Character	5	FFID Number
FY	Character	2	Fiscal Year
ISSUE_DATE	Date	8	Date of Action
NOT_TYPE	Character	4	Action Type
NOTICE_NUM	Character	32	Action Number
RECORD_ID	Float	3, 0	Record Number
REG	Character	6	Regulation Req.
RES_DATE	Date	8	Date Resolved

ENF_FIND - Enforcement Find Information

Column	Type	Length	Description
FACID	Character	5	FFID Number
FIND_NUM	Character	4	Finding Number
FIND_STAT	Character	1	Status
FINDING	Character	80	Description
RECORD_ID	Float	3, 0	Internal Record ID

FINE - Fine Information

Column	Type	Length	Description
AMT_PAID	Float	7, 3	Amount (K$) Paid
DATE_PAID	Date	8	Date Paid
FAC_ID	Character	5	Facility Identification
FINE_AMT	Float	7, 3	Amount (K$) Assessed
FINE_DATE	Date	8	Date Assessed
FINE_NBR	Character	33	Number
FINE_REG	Character	7	Regulation Required

INSPECT - Inspection Information

Column	Type	Length	Description
AGENCY1	Character	6	Agency
DATE_BEGAN	Date	8	Date Began
DEFICIENCY	Memo	10	Deficiency
FACID	Character	5	FFID Number
REG	Character	6	Reg.

PERMIT - Permit Information

Column	Type	Length	Description
EXP_DATE	Date	8	Expiration Date
FACID	Character	5	FFID Number
INIT_DATE	Date	8	Issue Date
PERM_FEE	Float	13, 0	Permit Fee
PERM_NUM	Character	32	Record Number
PERM_TYP	Character	18	Type

Other Columns Used by ARGISS

This section lists the tables and columns used by ARGISS that come from systems not listed above. These columns are used in the Create Application Data processes to generate the Reports for FPS. Any structure changes to them will also cause structure changes in the reports, the MapBasic code, and the PowerBuilder code.

FORC_FIL

Column	Type	Length	Description
ACTCO	Character	1	Action Code
AUAGR	Numeric	6, 0	Authorized Aggregate (sum of authorized strength for officers, warrant officers, and enlisted)
EDATE	Character	8	Effective Date
FACID	Character	5	Facility ID
ORD_DATE	Date	8	Date Orders were Cut
ORDER_NO	Character	9	Order Number
STAGR	Numeric	6, 0	Required Aggregate (sum of required strength for officers, warrant officers, and enlisted)
UIC	Character	6	Unit Identification Code
UNMBR	Character	4	Unit Number
UNTDS	Character	21	Unit Description

FPS - Created by the Engineering Automation Help Desk

Column	Type	Length	Description
ACT_AT_EXP	Character	10	Action at Expiration - what will happen when a lease expires (Not Used)
COST_PR_SF	Numeric	7, 2	Cost per Square Foot - calculated at year end using RISER data
CST_PR_SOL	Numeric	7, 2	Cost per Soldier
FAC_COND	Character	5	Facility Condition - This Red, Amber, and Green Status comes from ISR. ISR tracks everything by Building Number.
FAC_ID	Character	5	Facility Identification

Column	Type	Length	Description
PERM_SOL	Character	20	Permanent Solution (for a lease) - a new facility will be built by Army Reserve, noting it is only needed temporarily, etc. (Not Used)

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Appendix C

Basic Mapinfo Features

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Objective

MapInfo Professional is a commercial desktop geographic information system (GIS) package. The following section will familiarize the student with basic *MapInfo Professional* capabilities and functions. Please refer to the *MapInfo* Users Manual for more detailed and sophisticated functions. The tools and skills learned here will be used later in the *Facility Planning System* section. The following is a list of skills and functions the student will gain through this section:

- *MapInfo* Terminology
- Opening and Closing tables
- Understanding *MapInfo* Tool Palettes
- Understanding *Map* Windows and Layer Control
- Map Labeling and Auto Labeling
- Understanding *Browser* Windows
- Geocoding Data
- Basic Spatial Analysis Tools
- Creating Queries
- Understanding *Graph* Windows
- Understanding *Layout* Windows
- Printing Maps, Graphs and Charts
- Saving Tables
- Saving Workspaces

Again, the following section is to give the user a basic understanding of *MapInfo Professional*. It is recommended that the user experiment with the additional functionality not covered in this section.

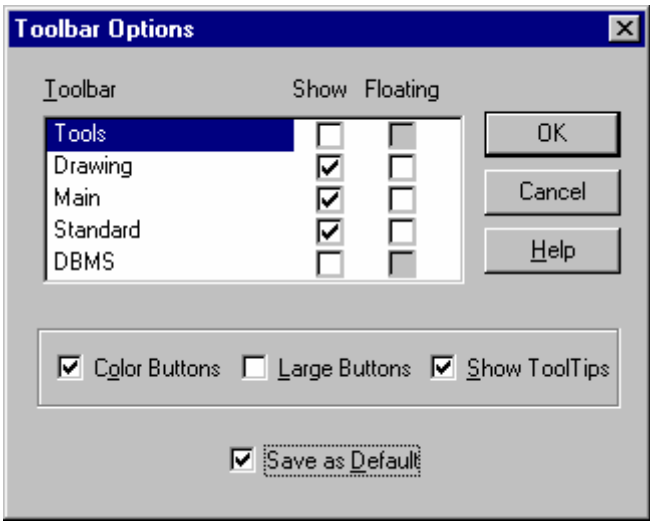
MapInfo Terminology

Table III-1 MapInfo Terminology

Term	Definition
Autolabel	Automatically labels objects.
Browser window	A window that displays data in tabular form.
Cosmetic Layer	The topmost layer of a map which contains temporary graphic objects.
Geocode	The process of assigning latitude and longitude coordinates to records in a table so they can be displayed as objects on a map.
Graph window	A window that displays numeric data as a graph.
Map window	A window that displays a table as a map.
Query	A process to generate new information with a table or map.
Thematic Map	A type of map that uses colors and fills patterns to graphically display information.
Workspace	A saved configuration of *MapInfo* windows.
Table	The tabular representation of data similar to a spreadsheet.

Toolbars

There are three toolbars most often-used in *MapInfo*, *Standard, Main* and *Drawing.* Each of these are dockable toolbars that can be placed anywhere by clicking on the title bar and dragging to the desired location. Once you have placed the toolbars in the desired location, this can be saved as a default by choosing **Options > Toolbars,** the Toolbar Options dialog displays, click the box next to **Save as Default** as shown below.



The *Standard* toolbar contains the screen elements most often used, as shown in Table III-2. All of these functions can also accessed through the menu options. The following tables define the buttons on the *Main, Drawing and ODBC Toolbars:*

Table III-2 Standard Toolbar

Tool	Function
New Table	Creates a new table.
Open Table	Allows the user to open a MapInfo table, dBase DBF file, delimited ASCII file, Lotus 1-2-3 spreadsheet, Microsoft Excel spreadsheet or raster image.
Save Table	Saves changes made to a table.
Print	Prints the contents of a Browser, Redistrict, Map, Graph or Layout window.
Cut	Cuts selected text and objects and moves them onto the clipboard.
Copy	Copies the selected text and/or graphic information and places it on the clipboard.
Paste	Copies the contents of the clipboard into the table or window being edited (you cannot paste text into a query table).
Undo	Allows the user to undo the last edit operation.
New Browser	Allows the user to view and work with text data in table form.
New Map	Displays a table as a map.

Window	
New Graph	Displays a table as a graph.
New Layout	Allows the user to arrange and annotate the contents of one or several windows for printing.
New Redistricter	Use this button to begin a redistricting session.
Help	To get help on a topic, click the Help button on the Standard Toolbar. Click on an area and information on the area clicked will come up in a standard Help Window.

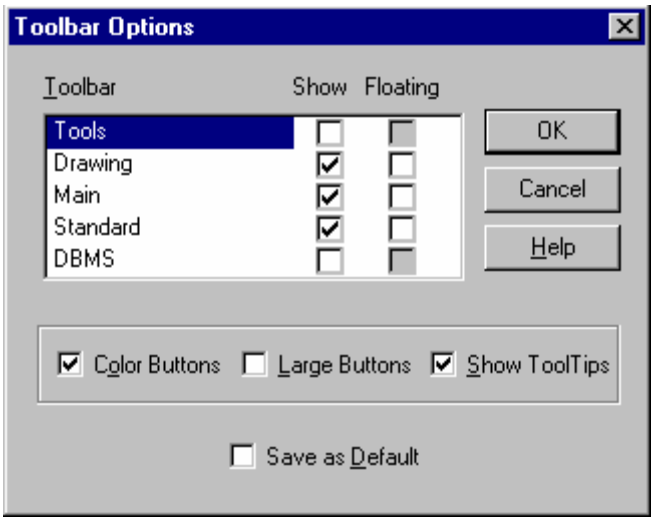
Table III-3 Main Toolbar

Tool	Function
Select Button	Selects one or more objects. The select button is the default pointer or cursor tool.
Marquee Select	Selects map objects that fall within the borders of a rectangular drawn region.
Radius Select	Selects map objects that fall within a circular drawn region.
Polygon Select	Selects map objects that fall within the borders of a selected polygon region.
Zoom In	Zooms in to obtain a closer view of a map or layout.
Zoom Out	Zooms out to obtain a wider view of a map or layout.
Change View	Changes settings for map window length, map scale, map size and map centering.
Grabber	Repositions a map by clicking the left mouse button and dragging the map to the desired location or view.
Information	Displays the associated database information of an object by clicking on the object.
Label	Labels objects on the map with information from a related database.
Drag and Drop	Places *MapInfo Professional* Map into an OLE container application to paste into a Microsoft Word or PowerPoint document.
Layer Control	Specifies how the various tables (layers) in a map are displayed, labeled and ordered.
Ruler	Determines the distance between two points or the length of a path.
Legend	Displays or hides the map or graph legend.
Statistics	Displays or hides the statistics window containing sum and figure averages for all selected numeric fields.

Table III - 4 Drawing Toolbar

Tool	Function
Symbol	Places point symbols on a map.
Line	Draws single straight lines on a map.
Polyline	Draws polylines on a map.
Arc	Draws an arc the size and shape of one quarter of an ellipse.
Polygon	Draws filled polygons.
Ellipse	Draws filled elliptical and circular objects.
Rectangle	Draws filled rectangles and squares.
Rounded Rectangle	Draws filled rounded rectangles and squares.
Text	Adds titles, labels and annotation to maps and layouts.
Frame	Creates frames in the *Layout* window to display maps, graphs, *Browser*s, legends, info windows, statistics windows, message windows and empty frames.
Reshape	Edits regions, polylines, lines and arcs by moving, adding and deleting nodes that define them.
Add Node	Adds additional nodes to an object for more precise editing.
Symbol Style	Changes the style, color and size of a symbol object.
Line Style	Changes the style, color and size of a map object.
Region Style	Changes the fill pattern and border of region objects.
Text Style	Changes the font, typeface, size, style, color and background of text objects.

By using the *Main* and *Drawing* toolbars, users can perform a majority of basic mapping and GIS functions within *MapInfo*. To display or hide these toolbars chose **Options > Toolbars,** the Toolbar Options window displays as shown below.



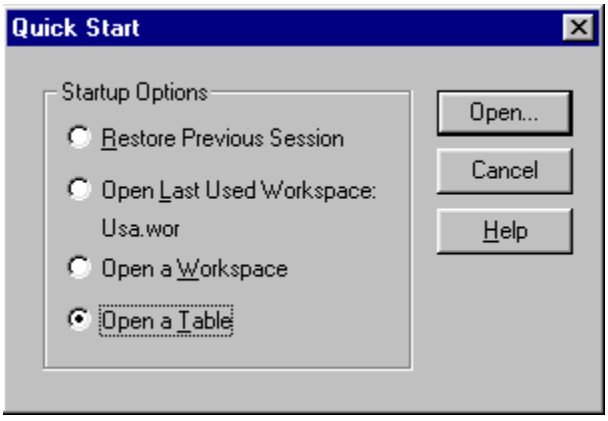
Further explanations of each of these toolbars can be found by clicking on the toolbar button or by choosing ***MapInfo Help Topics*** from the ***Help*** menu option.

To Launch MapInfo:

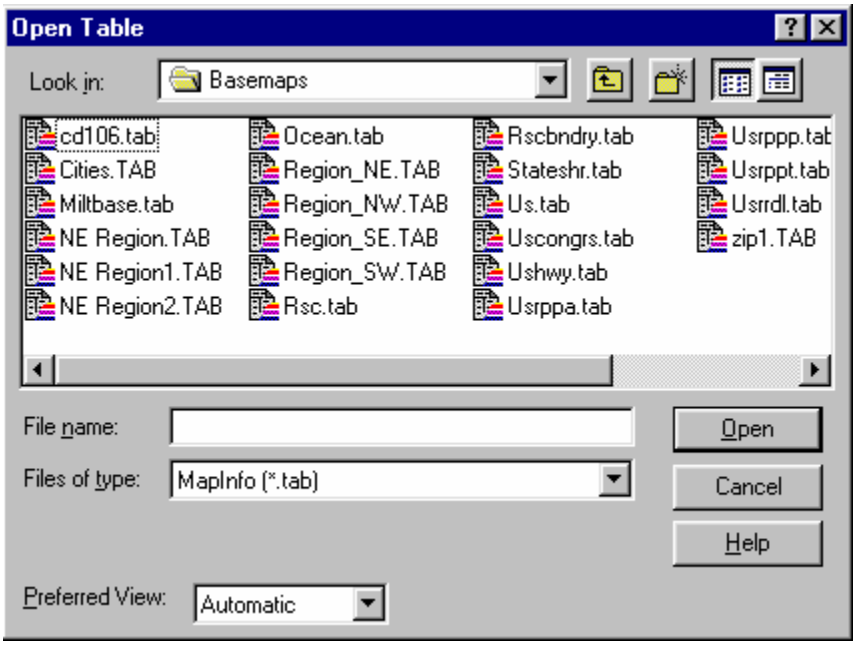
1. Select ***MapInfo Professional 5.5*** from the ***MapInfo*** program group.

To open a table:

1. Choose ***Open a Table*** in the *Quick Start* dialog.

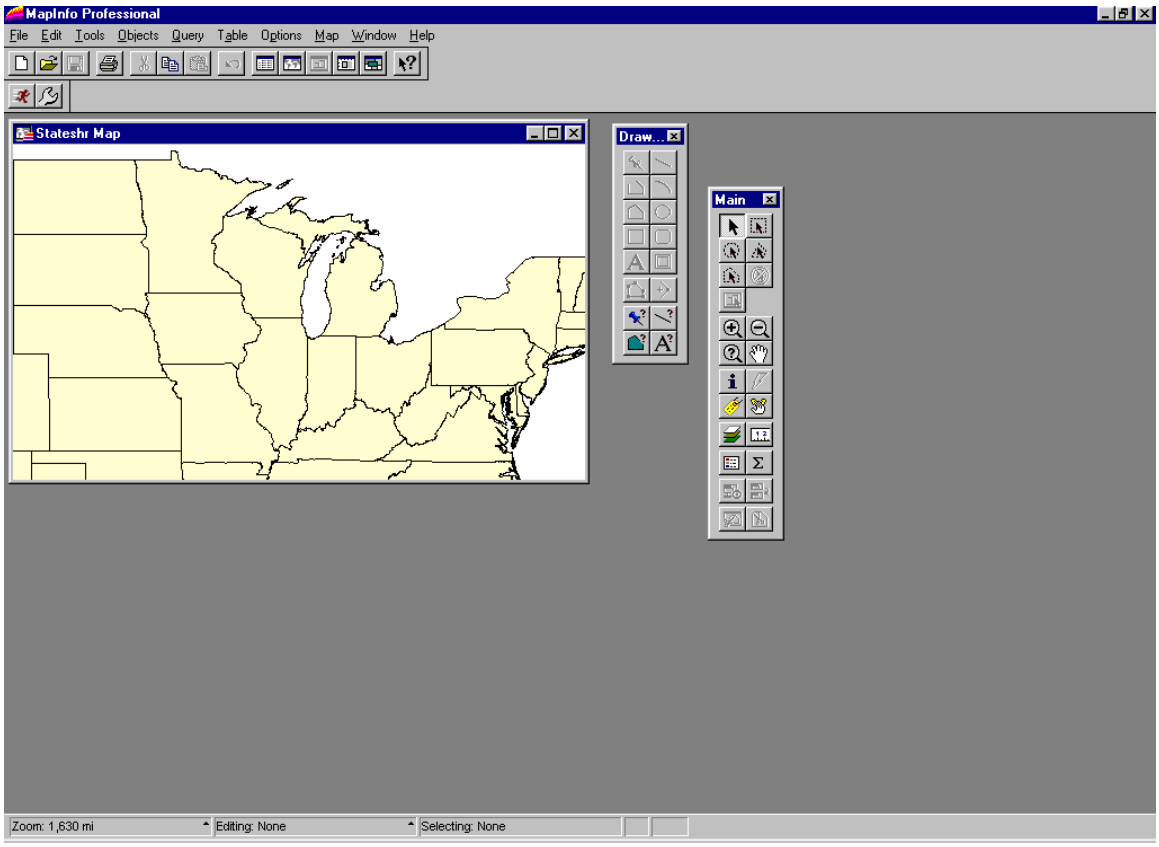


2. Click ***Open***. The ***Open Table*** dialog displays:



3. Navigate to **T:\ENBOSS\ARGISS\BASEMAPS**.
4. Highlight **STATESHR** and click ***Open*** or double click on the file name.

You will see a window display with a map of the United States. This is a ***Map Window*** where the user can manipulate maps and their associated graphics.



The *Draw* and *Main* toolbars are dockable toolbars which can by placed anywhere by clicking on their title bar and dragging to the desired location. Once you have placed the toolbars in the desired location, it can be saved as a default by choosing **Options > Toolbars,** the Toolbar Options window displays, check the check box next to **Save as Default.**

Understanding Tables

MapInfo allows users to view and manipulate database information in many different ways. Spatial data can be mapped to view and analyze spatial relationships, such as roads, lakes and distances between USAR centers. Textual data is displayed in a spreadsheet format within a *Browser* window or as individual records shown in an *Info Tool* window. Numeric data can be graphed within *MapInfo* quickly to show mathematical relationships between data. A *Layout* window allows the user to combine all these types of data in one window for plotting or printing.

MapInfo organizes spatial data in four different types. Any of the four types will be referred to as objects when discussing *MapInfo* functionality. These four types are:

- **Point** - Refers to a single location of a data element (*e.g.* building location, fire hydrants or wells)
- **Line** - Refers to straight or polyline objects that cover a given distance and have no area associated with them (e.g. road centerline, fence line, property line)
- **Region** - Refers to closed objects, or polygons, that cover a giver area (e.g. country, state, zip code boundary)
- **Text** - Refers to text that describes any of the previous objects (e.g. labels, titles, north arrows)

It is recommended that each type be a separate layer on the map. When opening a file in *MapInfo*, two tables are being created. For example, when opening a dbase or FoxPro table, *MapInfo* automatically splits it into two files. The two types of files are:

- **Myfile.tab** describes the structure of the table. This is *MapInfo's* primary file type.
- **Myfile.dat** contains the actual data saved in *MapInfo's* file format.

the table is considered *"mappable"* if it can be graphically displayed on a map within *MapInfo*. In order for the table to be mappable the records must be assigned latitude and longitudes through the process of geocoding. The two additional files necessary for graphic objects are:

- **Myfile.map** describes the graphical objects.
- **Myfile.id** cross reference file that links the data with the objects.

The table may also contain an indexed field. Indexes allow searches to be performed on the table. For example, in order to search on an address, the address field must be indexed in the table in *MapInfo*. The additional file necessary for an index is:

- **Myfile.ind** indicates a reference point, or index to perform a search on a field.

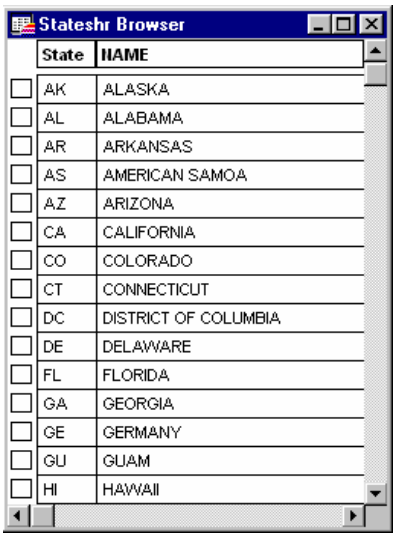
Viewing Tabular Data

To display the data in the STATESHR file as text, in a database/spreadsheet form, use a ***Browser Window.***

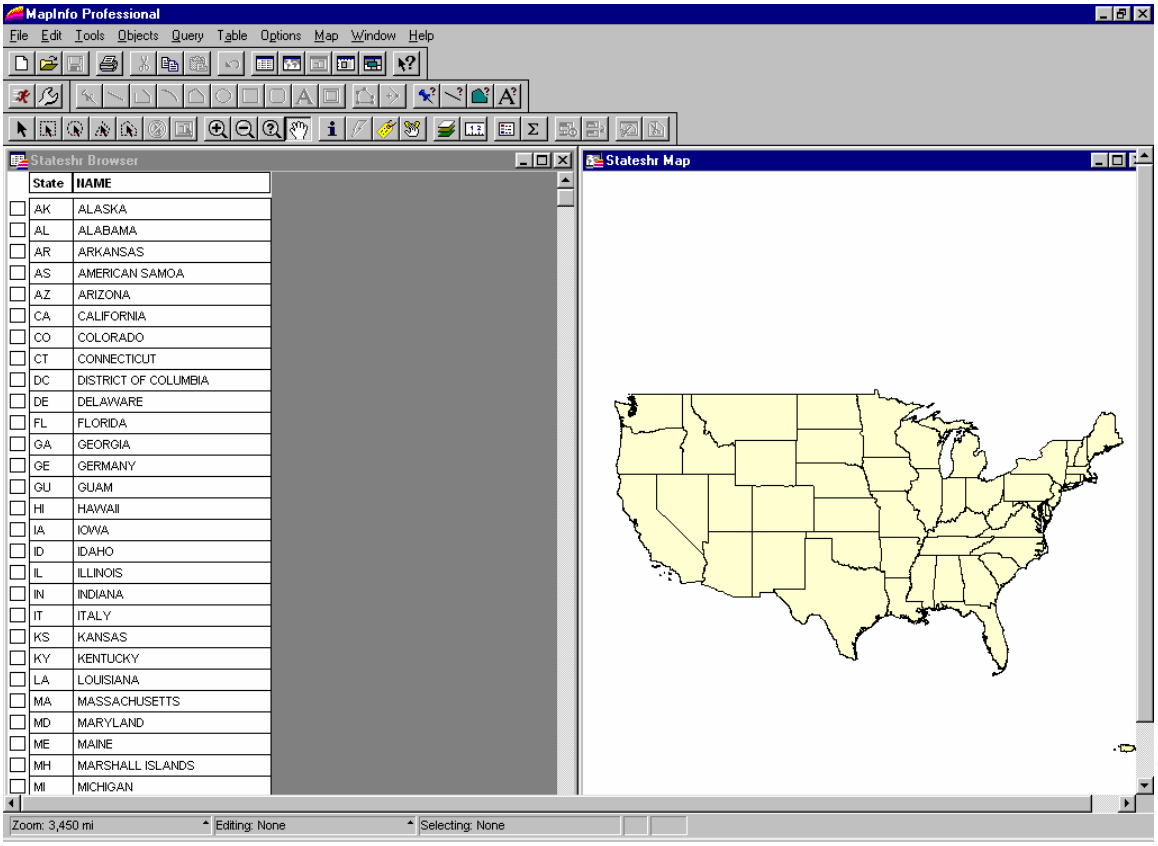
1. Choose ***Window > New Browser Window*** or click on the New Browser button or by pressing ***F2***.

The tabular data associated with the STATESHR table displays.

Note that BROWSE replaced MAP as an option on the Menu bar. This is a window specific option that is available only when a Browser window is active.



The user can view both the Map window and the Browser window at the same time by selecting ***Windows > Tile Windows*** or press **<SHIFT>** and **F4**. These windows are interactive.

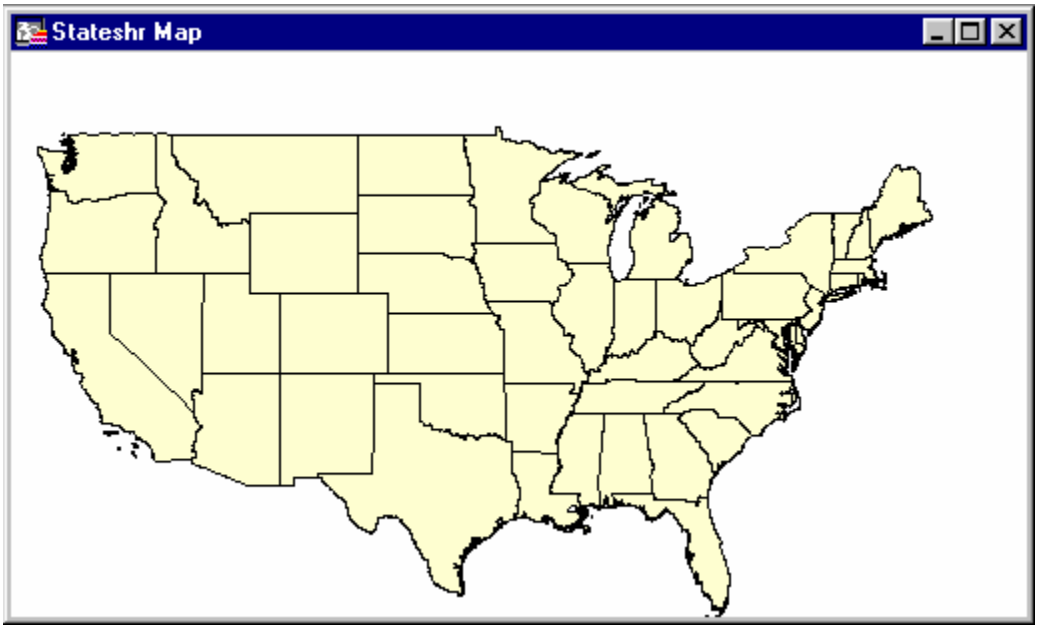


State	NAME
AK	ALASKA
AL	ALABAMA
AR	ARKANSAS
AS	AMERICAN SAMOA
AZ	ARIZONA
CA	CALIFORNIA
CO	COLORADO
CT	CONNECTICUT
DC	DISTRICT OF COLUMBIA
DE	DELAWARE
FL	FLORIDA
GA	GEORGIA
GE	GERMANY
GU	GUAM
HI	HAWAII
IA	IOWA
ID	IDAHO
IL	ILLINOIS
IN	INDIANA
IT	ITALY
KS	KANSAS
KY	KENTUCKY
LA	LOUISIANA
MA	MASSACHUSETTS
MD	MARYLAND
ME	MAINE
MH	MARSHALL ISLANDS
MI	MICHIGAN

Navigating the Map Window

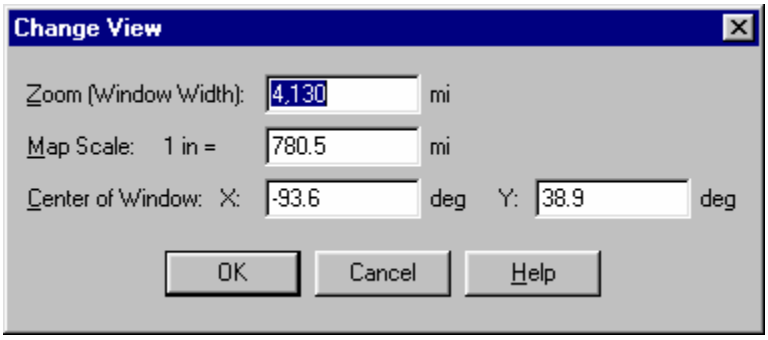
The benefit of viewing maps on computers is that the user can manipulate the map for easy of viewing. The user will often need to change a view of a map.

1. Select ***File > Close All***.
2. Select ***File > Open*** or click the Open Table button.
3. Highlight **STATESHR** and choose ***Open***. The United States map opens into a Map window:



There are multiple ways to change a map's zoom level. The *Change View* command allows the user to enter an exact zoom level. This also allows the user to set a specific map scale or to set the center point of the window.

1. Select ***Map > Change View*** or right click anywhere in the map window, click ***Change View***. The Change View dialog displays:



2. Type ***4130*** in the *Zoom (Window Width)* box.
3. Select ***OK***.

The map will redraw with a zoom level of 4,130 miles. The status bar at the bottom left of your screen reflects the new specification. The center point of the map does not change unless new coordinates are entered.

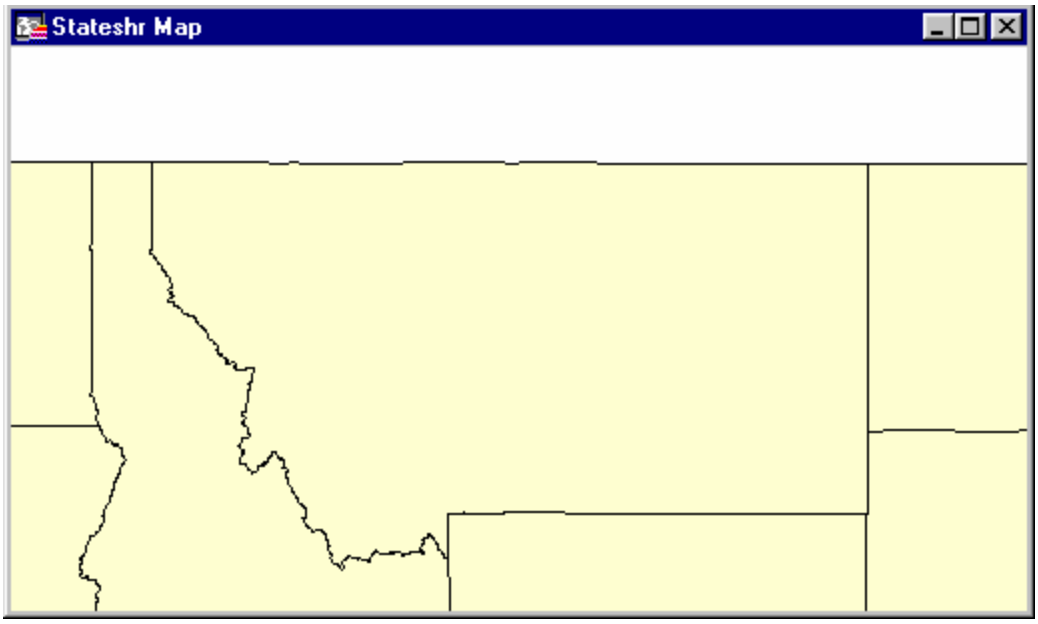
Using the Main Toolbar to Change a View

In addition to using the menu structure to access the Change View dialog, the user can click the Change View button or right click anywhere in the Map window and select Change View from the menu.

Zoom-In Zoom-Out and Grabber Buttons

The Zoom-In Button

1. Click the Zoom-In button on the Main Toolbar. The cursor becomes a magnifying glass with a plus sign in the middle.
2. Click on any area of the map. The area where you click will become the center point and the map will be magnified around that point.
3. Click and drag the mouse over the area you want to magnify. A *marquee* box will appear.
4. Release the mouse button after selecting an area within the marquee box. The area within the marquee will be magnified to fill the Map Window:



The Zoom-Out Button

1. Click the Zoom-Out button on the Main Toolbar. The cursor becomes a magnifying glass with a minus sign in the middle.
2. Click on any area of the map. The area where you click will become the center point and the map will zoom-out around that point.
3. Click and drag the mouse over the area you want to see. A *marquee* box will appear.

4. Release the mouse button after selecting an area within the marquee box. The area within the marquee will zoom-out to show more of the map.

The Grabber Button

By using the grabber button, the user can reposition the map to view the particular area of interest without changing the zoom level.

1. Click the Grabber button on the Main Toolbar. The cursor becomes a hand as it is moved within the Map window.
2. Click and hold anywhere on the map, then drag the cursor to view the area of interest.
3. Release the mouse button. The map is redrawn in its new position.

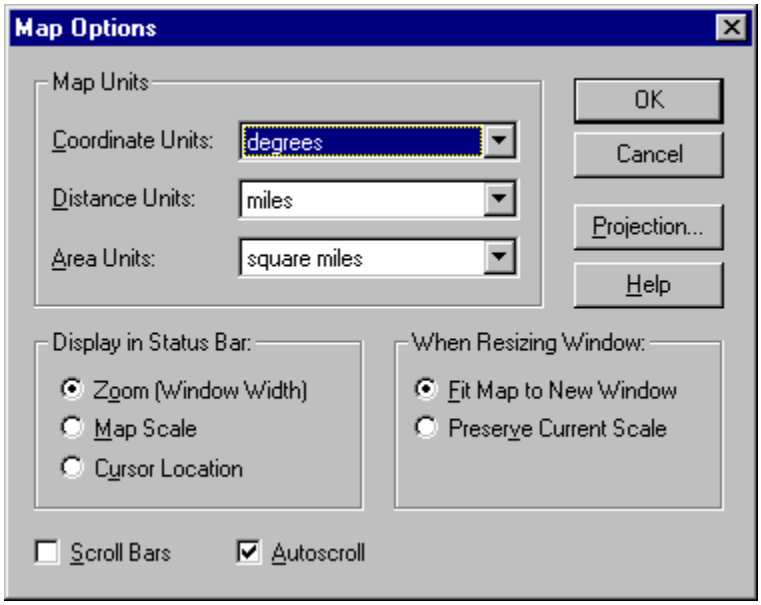
When any of these tools are chosen, they remain active after the user is finished using them. To "turn off" any of these buttons, the user must click the Select button from the Main Toolbar. When the Select button is active, InfoTips will display when the cursor hovers over an object

Changing Map Window Options

The default *Map* window options can be changed. The map units, map projection, scale location and type, map size and scroll bar options can be changed through *Map* > *Options.*

To change the *Map* window options:

1. Click ***Map*** from the menu bar then select ***Options***. The Map Options dialog displays:



The window on the previous page illustrates the many ways to change the default settings for the *Map* window. For example, it may be necessary to change the default distance and area units of miles and square miles to feet and square feet if working with a site or floor plan. This makes the

area and distance data more intuitive to most users. If using *FPS*, it is not necessary, or recommended, to change the map projections.

As with other Windows products, there are additional options available to the user by using the right mouse button while using *MapInfo*. Some of these options directly relate to a map window such as changing the view, returning to a previous view or viewing an entire specified layer.

Map Layer Control

Each table that contains graphic objects can be displayed as a layer in a *Map* window. Think of these layers as transparencies where each layer contains a different part of the map. The layers are stacked on top of the other and allow you to see all aspects of the map at the same time. For example, one layer may contain country boundaries, a second layer may have symbols that represent facilities and a third layer might consist of text labels. Laying these transparencies one on top of the other builds a complete map.

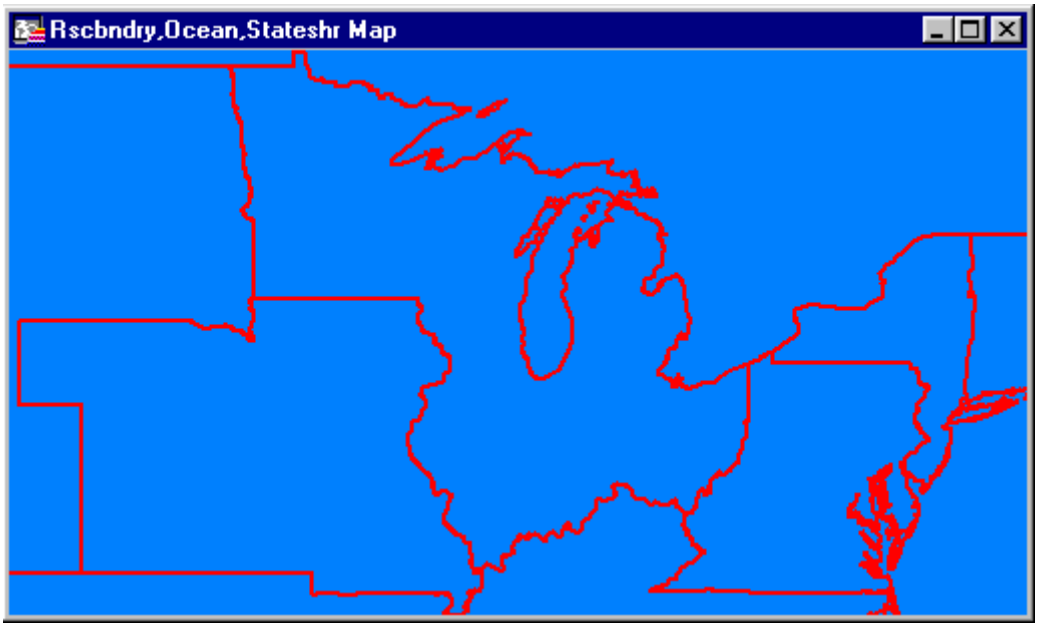
Layer Control is the most important function within a GIS. It is here where you control what layers to view, which ones can be edited or selected, label characteristics and display options.

1. Select ***File > Close All***.
2. Select ***File > Open Table*** or click the Open Table button on the Standard Toolbar.
3. Navigate to **T:\ENBOSS\ARGISS\BASEMAPS**.
4. Press and hold **<CTRL>** and click on **OCEAN, RSCBNDRY,** and **STATESHR**.

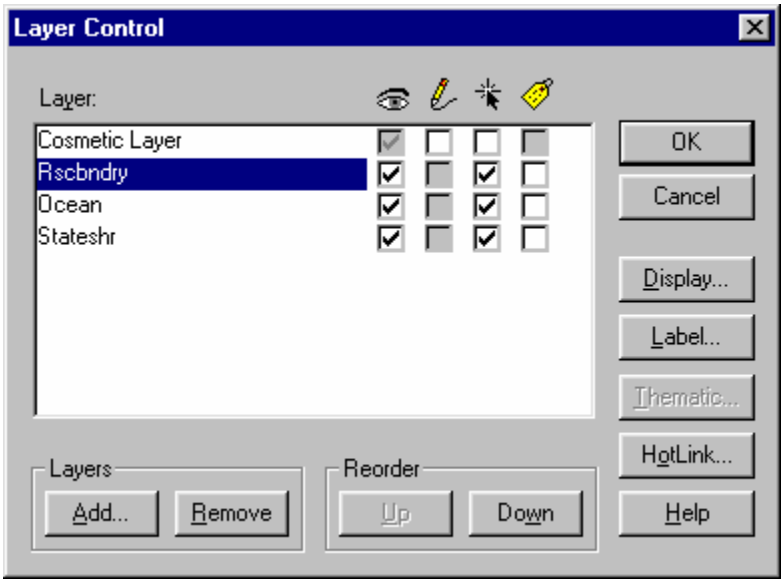
If the **<SHIFT>** key is held instead of the **<CTRL>** key, all files between the first and last files will be selected. Using the **<CTRL>** key allows the user to select files one-by-one.

5. Select ***Open*** or double click on the last table chosen.

The map displays:



To access the Layer Control dialog box click the Layer Control button from the ***Main Toolbar*** or select ***Map > Layer Control***. You can also access Layer Control by placing the cursor inside the Map window and right-click on the mouse then select ***Layer Control***. The Layer Control dialog box will display:



Layer Visibility

The visible attribute in Layer Control controls whether a layer is visible on the map. For example, to make a layer invisible, uncheck the layer's visible check box. The layer will no longer display in the map window, however, the file is still open.

Reordering Layers

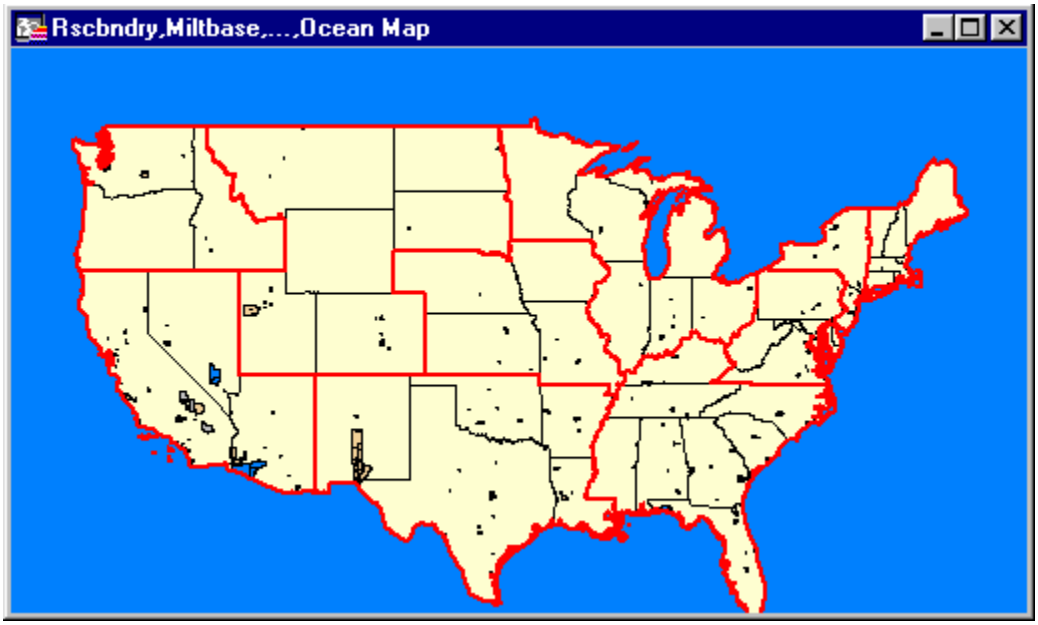
In our map, you see the Ocean and the RSC boundaries. Because the Ocean layer is positioned on top of the States layer, the land is blue. We need to reorder the layers in order to see the State and RSC boundaries correctly.

1. Select the ***Ocean*** layer.
2. Click the *Down* button from the R*eorder* group and move it to the bottom.
3. *Clicking and dragging down on the text 'Ocean' will accomplish the same task.*
4. Click ***OK***.

The Map window automatically redraws itself. The State and RSC boundaries are now visible.

Adding and Removing Layers

To add or remove a layer click the ***Add*** or ***Remove*** button from the *Layers group* at the bottom left of the window. A list of available layers to add or remove will appear. Simply click the layer to add or remove. If no other files are open, select ***File > Open Table*** or click on the Open Table button . Chose ***Miltbase*** by double clicking on the file name or highlight and click ***Open***. The map automatically redraws showing the new layer added.

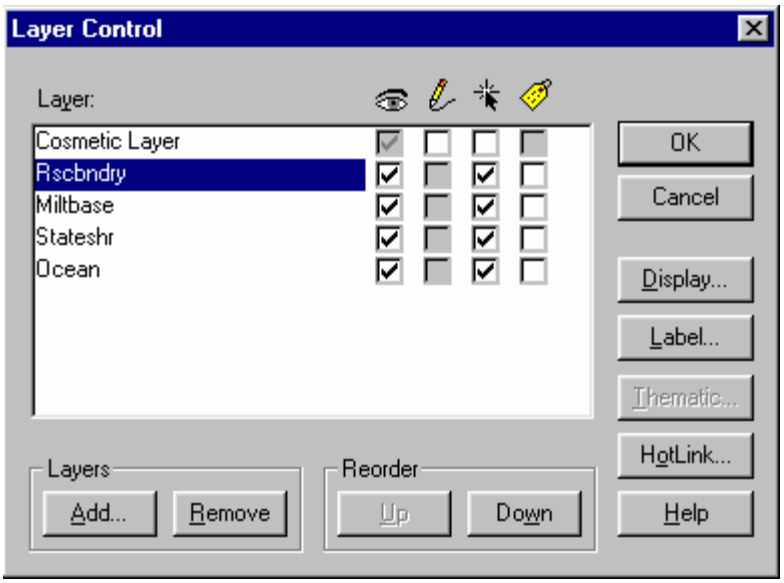


Displaying Layers

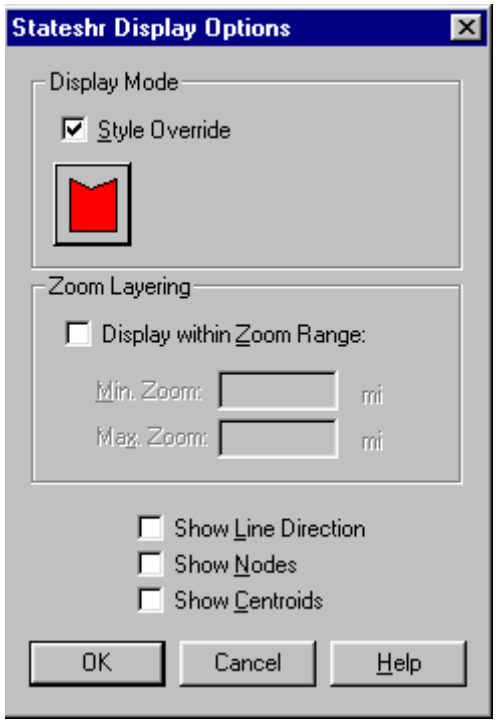
When you first open a *Map Window*, boundaries, lines, points and text are all displayed using defaults in the map file. You can change how objects display by using the ***Display*** button in the ***Layer Control*** window.

To change display options of a window:

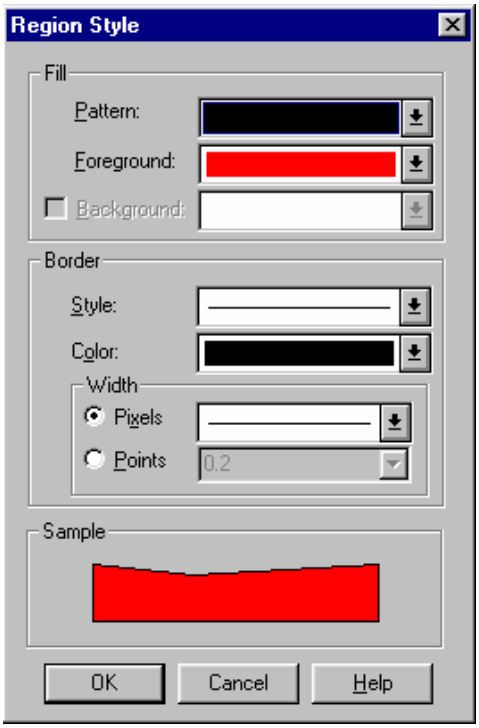
1. Highlight the layer you wish to change the display from the ***Layer Control*** window.
2. Click the ***Display*** button.



3. Check the ***Style Override*** check box then click the Style Override button directly below. The Region Style dialog displays:



4. Using the ***Fill*** and ***Border*** drop down lists, change the color, fill pattern, border color, border style and border width. If a layer contains points, lines or text, the appropriate button will appear in the display options dialog and functions the same way as the region style dialog.



5. Click **OK.**

Editing and Selecting

To make changes to the graphic objects in a layer, you must make the layer editable. You can draw objects on that layer, add text, combine layers or delete objects. Only one layer per *Map* window can be editable at one time. To edit a layer, check the ***Editable*** check box next to the layer you wish to edit. To make a layer selectable, check the ***Selectable*** check box next to the layer you wish to make selectable. A layer is automatically selectable when the ***Editable*** check box is checked.

Cosmetic Layer

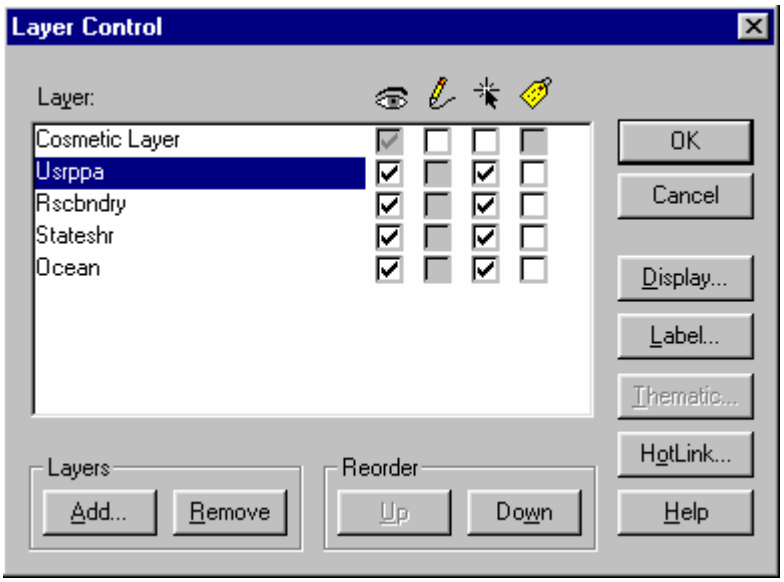
Every map window in *MapInfo* has a ***Cosmetic Layer***. Think of the ***Cosmetic Layer*** as the blank transparency that lies on top of all of the other layers. It stores map titles and other graphic objects you create during a work session. The ***Cosmetic Layer*** cannot be removed or reordered and it can only be editable or selectable.

1. Click the Layer Control button.
2. Check the **Editable** check box.
3. Click **OK.**

The Cosmetic Layer is now editable as shown in the status box at the bottom of the screen.

Labeling A Map

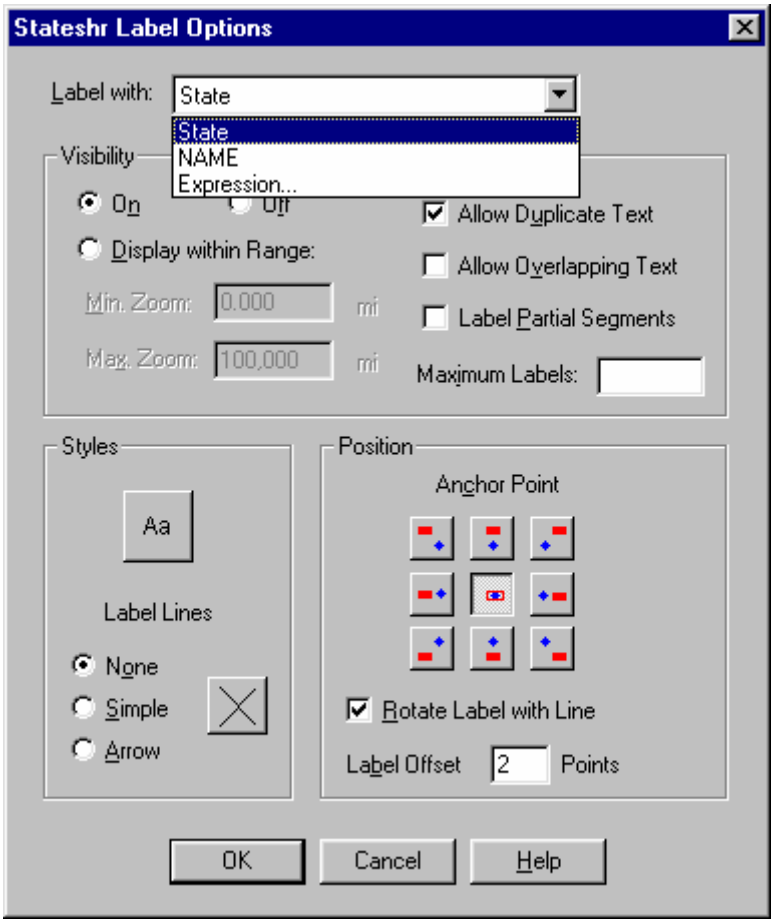
Labels in MapInfo are obtained from the data associated with the map objects. By default, the data pulled is from the first column in the table. The auto label check box in the ***Layer Control*** is, by default, not activated. To activate auto labels, simply check the box for the layer you want to label.



The ***Label*** tool from the ***Main Toolbar*** can be used to *interactively* label objects on the map. When the Label Button is used, hover over a map object with your cursor, a tool tip corresponding to that object will display on the map window.

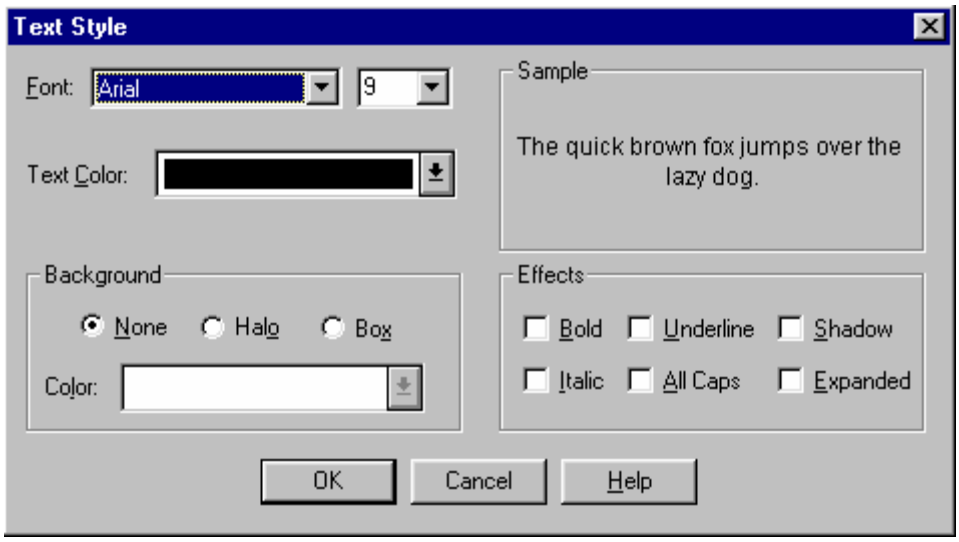
To change the default auto label options for the map:

1. Click the Layer Control button or right click your mouse.
2. Highlight the layer you want to label, click ***Label***. The STATESHR Label Option dialog displays.



Note: The Label with dropdown box allows the user to select a field to label with.

3. Check the ***Allow Overlapping Text*** **or** ***Allow Duplicate Text*** if desired.
4. Under ***Styles***, click to change the appearance of the text style. Click ***OK.***



To change the position, or the anchor point of the label, click the desired anchor point from the *Position* options.

5. To change the position, or the anchor point of the label, click the desired anchor point from the ***Positions*** option.
6. Click ***OK.***

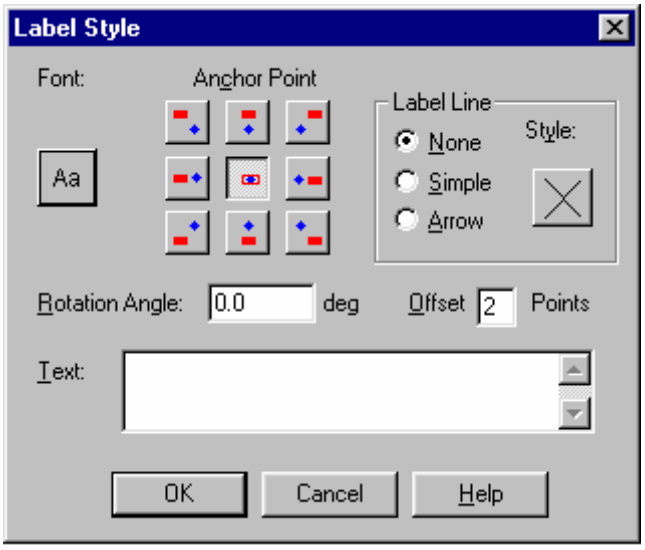
Moving a label:

1. Choose the Select button from the Main Toolbar.
2. Click and drag a label to the desired location.

To edit an existing label:

3. Double click on a label.

The Label Style dialog will display.



Removing Labels:

1. Choose the Select button from the Main Toolbar.
2. Press the ***Del*** key on the keyboard or select ***Edit > Clear.***

Saving Labels:

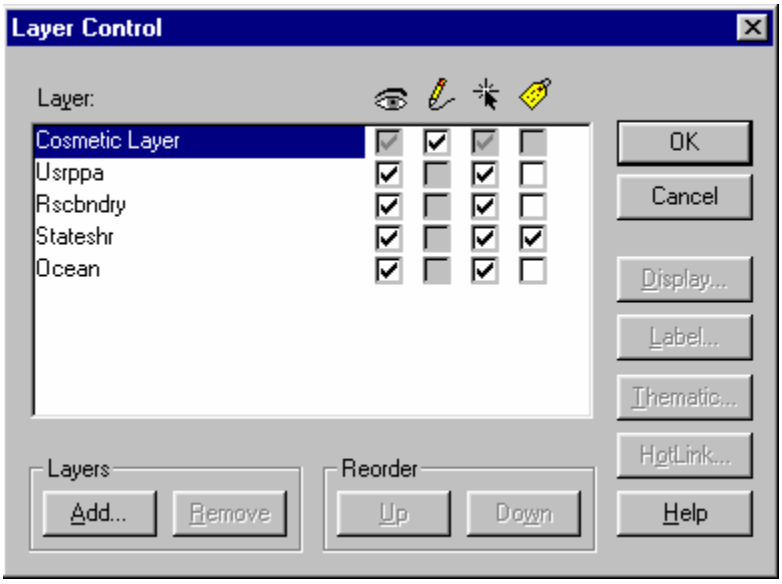
Labels can be saved as a workspace. The workspace saves the desktop configuration (map, graph and browse window layout) and labels.

1. Select ***File > Save Workspace***.
2. Type a file name.
3. Click ***Save***.

Creating titles for the workspace

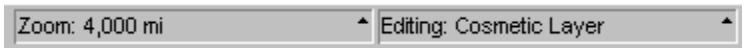
Before text can be added to a map window, the layer must be editable. The editable layer accepts new map objects when drawn on the map. You can also modify, delete, reshape, or change the style of objects on a map. The Cosmetic Layer is placed in every map window. It also cannot be removed or reordered from the top layer. You can use this layer as a transparency to create objects or place text you cannot create through labeling, such as titles.

1. Click the Layer Control button.
2. Highlight the *Cosmetic Layer*.
3. Check the box underneath the pencil.



4. Press **OK.**

You can now add, delete, and modify the contents of the cosmetic layer. The status bar at the bottom of the screen indicates which layer is editable:



Select the Text button on the Drawing Toolbar then click in the map where you wish to enter text. Press the Select button to exit the text mode.

Saving the Cosmetic Layer

Objects from a cosmetic layer can be saved into a new permanent layer, to be used with different maps or by saving a workspace. To save the cosmetic layer as a new table:

1. Open ***Map > Save Cosmetic Objects***.
2. Type in a file name in the *Save Objects Table dialog.*
3. Click *Save.*

The Save Cosmetic Objects dialog displays.

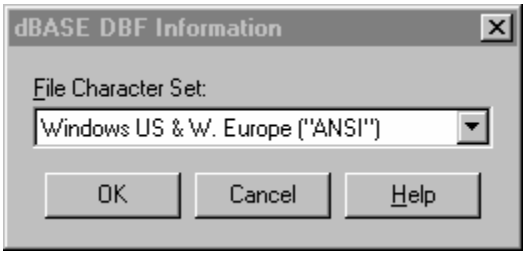
Browser Windows

Use *Browser* windows to view and manipulate your data records in a traditional row and column form, typically used in spreadsheets and databases. For example, *Data Bridge* queries can be opened, manipulated, geocoded and printed within *MapInfo*. Each column contains information about that particular field. Each row contains information relating to a single record.

You can edit records in your table, copy records, add new ones, or delete existing records. To open a *Browser* for an active *Map* window, choose ***Window > New Browser Window***.

To open a database that was created in the *Data Bridge* or another software package:

1. Click File from the menu bar and select Open Table.
2. Navigate to the drive and the directory where the database is stored.
3. Under the List Files of Type select dBASE DBF to view all DBF files.
4. Click the database you want to open and click OK, or double click on the database.
5. The following window will appear. Click OK.



6. A *Browser* window containing the selected database is now open. You can use the scroll bars to maneuver in the table. To view more of the table, resize the borders of the *Browser* window. To view both the map window and the *Browser* window, click and drag both windows to new positions.

Moving and Resizing Columns

To move columns in the table, position the cursor on the column name to move. Notice the *Grabber* tool becomes active. Click and drag the column to a new position.

To resize the column width place the cursor on the line dividing the column names until a cross with two arrows is visible. Click the mouse and drag the length of the column to a new size. These changes are only temporary and cannot be saved.

The grid lines in the *Browser* window can be displayed or hidden. To show grid lines:

1. Click on the ***Browser*** window to make it active.
2. Click on the ***Browse*** menu from the menu bar.
3. Choose ***Options***.
4. Click on the ***Show Grid Lines*** check box to display grid lines. Uncheck it to hide the grid lines.

5. Click ***OK***.

Querying Objects

MapInfo allows you to select objects in multiple ways. You can use the selection tools on the *Main* tool bar to interactively select objects. Select multiple objects by holding the SHIFT key down while selecting the objects. You can also select objects by querying the tables.

Selected objects are placed into temporary tables. When you make a selection, *MapInfo* creates this temporary table to store the records you have selected. This table is temporarily named *Selection* or *QueryX*, where *X* is a number beginning with one and increasing with each successive query. You can perform many of the tasks with a selection table that you can perform with permanent tables.

To convert selections into permanent tables, use ***File > Save Copy As***. A list of available tables to save will appear, click on ***Selection*** and name the table. Once you have saved the temporary selection table as a permanent table, you can treat it like any other table. In order to select objects from a map layer using the tools described below, the layer must be selectable in the ***Layer Control*** window.

Once the selection has been saved as a permanent table you must open that table by clicking ***File > Open Table*** and selecting the permanent table you just saved.

To select objects interactively on the map window, use the following tools:

- - Select objects by clicking the cursor on them. To select multiple objects hold the <SHIFT> key down while selecting the objects
- - Select objects by drawing a rectangle around them
- - Select objects by drawing a circle around them
- - Select objects that are contained within a closed region

To clear selected objects click ***Query*** from the menu bar and then ***Unselect All*** or click the Unselect All button on the Main toolbar.

Selecting Using Queries

A query is another word for a question. *MapInfo* allows you to query databases using *Select* or *SQL Select* from the *Query* menu option.

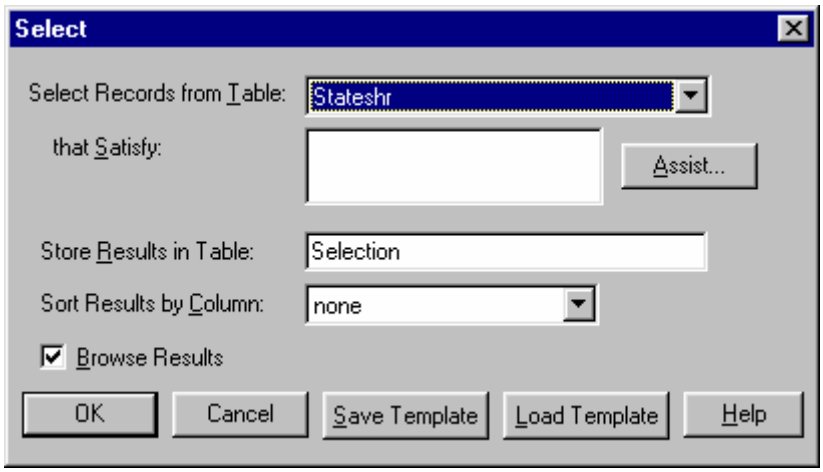
Select allows you to select records and objects from a table according to specific attributes. You can use it to highlight objects in a map or *Browser* window that meet certain criteria. For example, you can ask *MapInfo* to:

- Show all TDA units
- Show only facilities greater than 25000 square feet
- Show only facilities located in a particular state
- Show counties ideal for recruiting

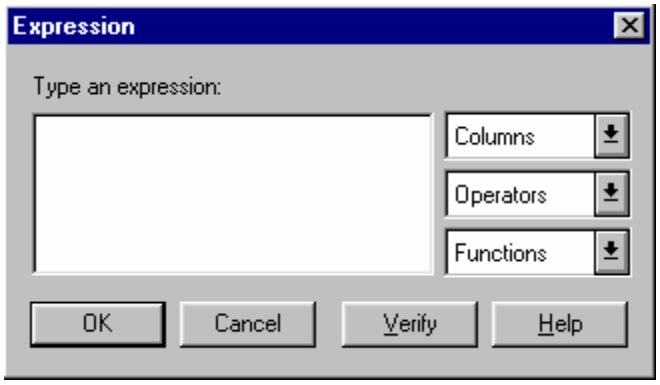
To perform a Select query, you must create an expression. An expression is a logical statement that is used to ask your question. For example, the expression GR_TNG_SF > 25000 would produce a selection table with facilities greater than 25000 square feet.

To query data using Select:

1. Choose ***Select*** from the ***Query*** menu.



2. Select the table to query from the ***Select Records from Table*** drop down box.
3. Type the expression in the ***that Satisfy*** box or click the ***Assist*** button for help creating the expression. The drop down boxes on the right will assist you in creating a query.



4. Click ***Verify*** then ***OK*** when expression is complete.
5. To sort the results by a specific column, select the column to sort by in the ***Sort by Column*** drop down box.
6. Click ***OK***.

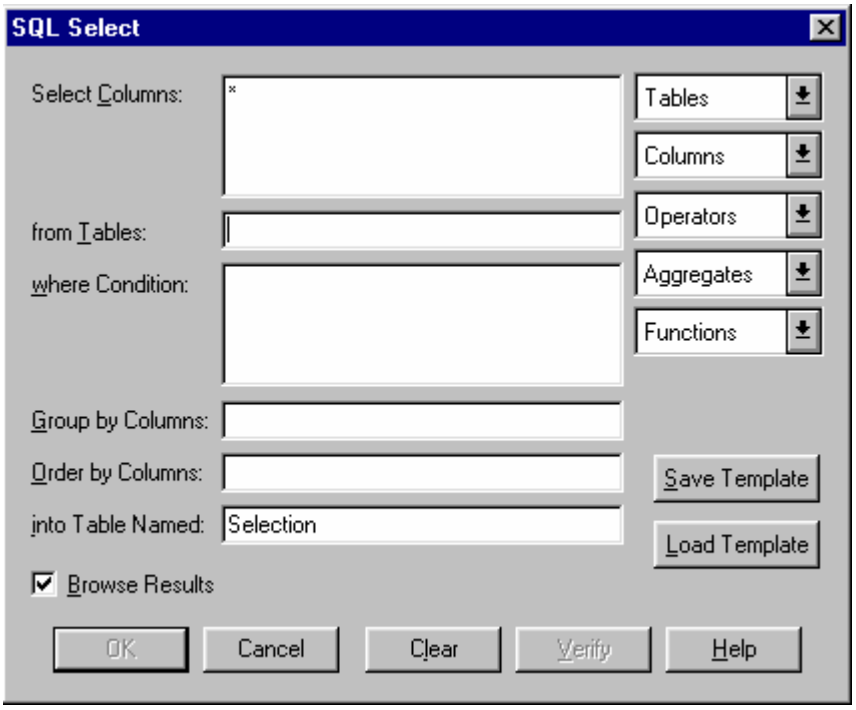
The expression will query the selected table, extract the records that meet the expression and display the results in a *Browser* window. To save the results of the query to a permanent file, select ***File > Save Copy As*** and give the Selection a permanent file name.

Selecting Using SQL Select

While *MapInfo*'s *Select* command lets you formulate sophisticated queries, *SQL Select* goes even further. The records in the query table generated by the *Select* command do not have any information in them that is not contained in the records of the base table. They are, in fact, the same records. They have been arranged so they can be viewed together. With *SQL Select* you can create query tables containing information that was only implicit in the base table.

To do an ***SQL Query,*** do the following:

1. Select ***SQL Query*** from the ***Query*** menu option.
2. In the ***from Tables*** box, choose a table(s) from the ***Tables*** drop down box. You can query multiple tables using ***SQL Select***.
3. You must fill in the ***from Tables*** box before you fill in the ***Select Columns*** box. *MapInfo* uses the tables in the ***from Tables*** to generate the list of columns used to fill in the ***Select Columns*** box.
4. In the ***Select Columns*** box choose the columns you would like to extract from the table. Use the ***Columns*** drop down box to pick the columns. If you want all of the columns leave the * in the ***Select Columns*** box.



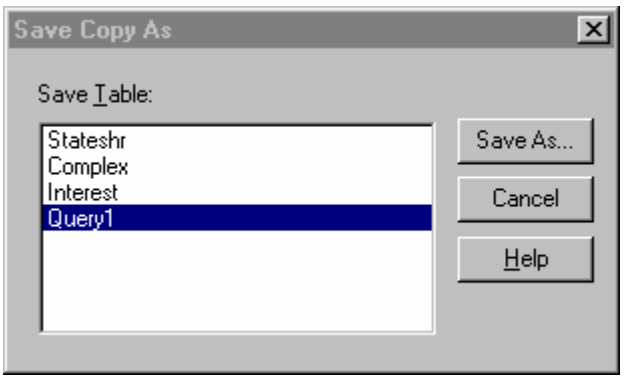
5. Enter an expression in the **w*here condition***. Use the ***Columns, Operators, Aggregates and Functions*** drop down boxes to create the expression. If desired, select a column to group or order by in the ***Group By*** and ***Order By*** drop down boxes.
6. Click Verify to verify the syntax of the expression. If there are any errors in your statement, MapInfo gives you an error message telling you what the error is and which box contains the error. If the expression is correct click ***OK***. The results will be displayed in a temporary ***Selection*** table.

Query1 Browser

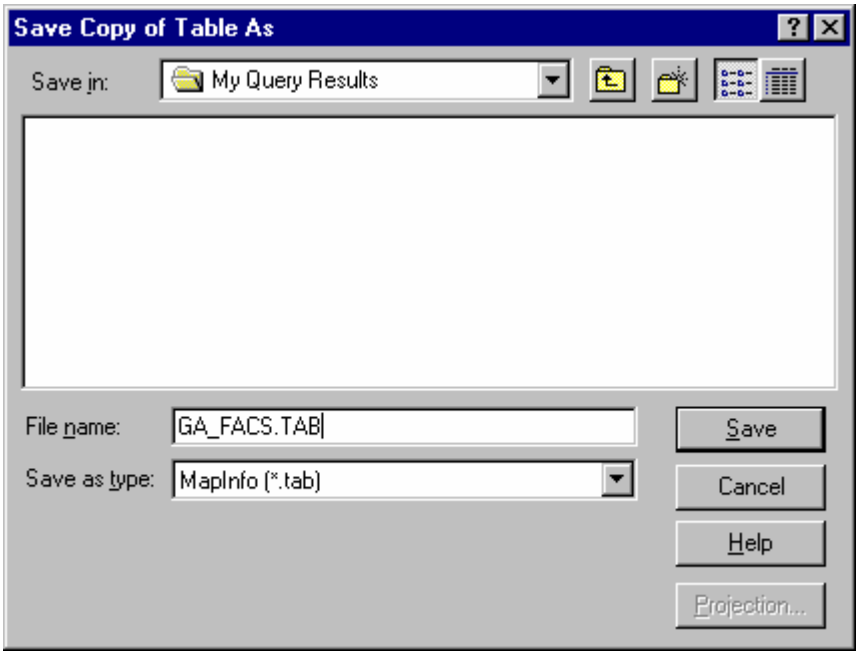
Cong_dist	Fac_city	Fac_id	Gr_tng_sf	Fac_title	Abb_type	Fac_idstr
3	FOREST PARK	GA014	26,235	FT GILLEM USARC BLDG # !	USARC (MB)	GA014
3	FOREST PARK	GA013	27,436	FOREST PARK USARC	USARC (MB)	GA013
3	FOREST PARK	GA016	30,000	FORT GILLEM USARC	USARC (MB)	GA016
2	MACON	GA032	30,911	MACON USARC/AMSA #46	USARC (MB)	GA032
11	AUGUSTA	GA002	31,174	AUGUSTA USARC/AMSA #:	USARC (MB)	GA002
2	FORT VALLEY	GA030	33,391	FORT VALLEY USARC	USARC (MB)	GA030
11	SAVANNAH	GA034	38,401	HARRY MILTON KANDEL US	USARC (MB)	GA034
10	ATHENS	GA001	46,840	ATHENS USARC	USARC (MB)	GA001
5	EAST POINT	GA011	55,265	EAST POINT USARC #1	USARC (MB)	GA011
10	FORT GORDON	GA026	70,525	FT GORDON 600 MEMBER L	USARC (MB)	GA026
4	DECATUR	GA077	84,836	DECATUR USARC	USARC (MB)	GA077

To save the query as a permanent file:

1. Click ***File > Save Copy As***



2. Select the query from the list of open tables and click ***Save As***.



3. Give the table a name and S*ave* it in a folder that you will remember.

Creating New Maps

MapInfo allows users to create maps from existing database files. To display your data on a map, you must first assign X and Y coordinates to each record. *MapInfo* assigns these coordinates by means of geographic information contained in your database table. This data is then related to another table (referred to as the search table) that already has X and Y coordinates associated with it. For this example, we will use the georeference table (GEOREF.TAB) as the search table. It is recommended to never geocode large databases directly from the LAN.

For example, you may want to assign X and Y coordinates to a *Data Bridge* query that has a Fac_id field in the database. *MapInfo* would read the Fac_id and look for matching Fac_id's in the search table (e.g. georef.tab). This search table already has X and Y coordinates associated with each record.

When *MapInfo* matches the Fac_id's in your *Data Bridge* query to the Fac_id's in the search table (georef.tab), it assigns the corresponding X and Y coordinates to your record. The geocoded point becomes part of your database. You can view these points by displaying your table in a *Mapper* window.

There are multiple methods of geocoding data. These are:

- *Geocoding by Address* - When you geocode your table with street addresses, *MapInfo* matches the addresses in your table to the addresses in a search table that contains street-level data and assigns X and Y coordinates to the record's address.

- *Geocoding by Boundary* - When you geocode your table with boundaries, *MapInfo* matches the boundary name in your table with the boundary name in the search table. *MapInfo* assigns the boundary centroid X and Y coordinates to your data records. The centroid of a boundary is the approximate midpoint. Zip code boundaries can be used to geocode records that contain zip code fields.

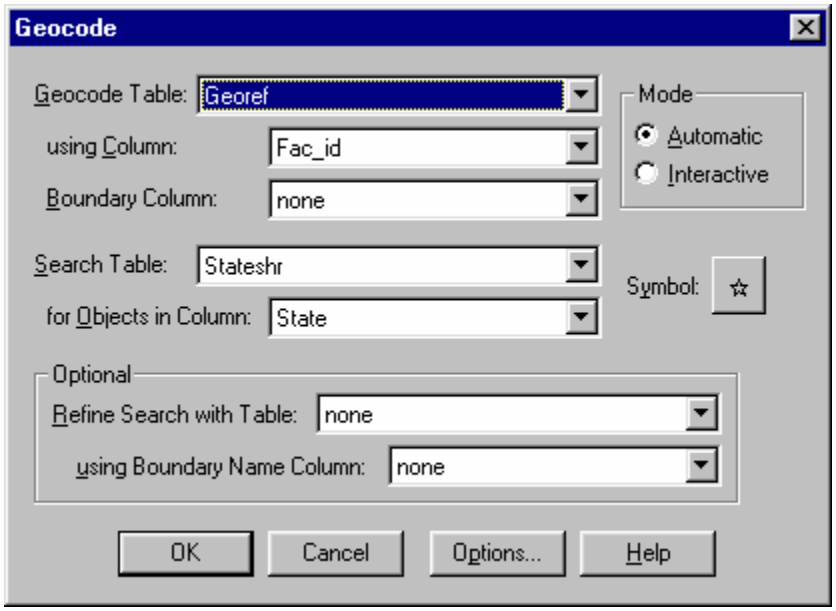
MapInfo also allows the user to geocode data in two modes:

- *Automatically* - Geocodes exact matches only and ignores all other records in the table
- *Interactively* - Pauses when it cannot match a record and lets the user select from a list of close matches

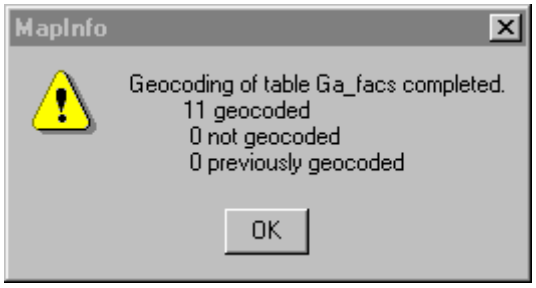
Always geocode automatically first, then go back and geocode interactively to match the records *MapInfo* could not complete. This will speed up the process by not requiring user interaction for every record.

To geocode a database file:

1. Open the table you wish to geocode by selecting ***File > Open Table***.
2. Open the table that will be used as the search table. If geocoding queries from the *Data Bridge* the search table to use is the **T:\ARGISS\DATASET\GEOREF.TAB**.
3. Once the geocode and search tables are open, select ***Table*** from the menu bar.
4. From the ***Table*** menu items, select ***Geocode***.



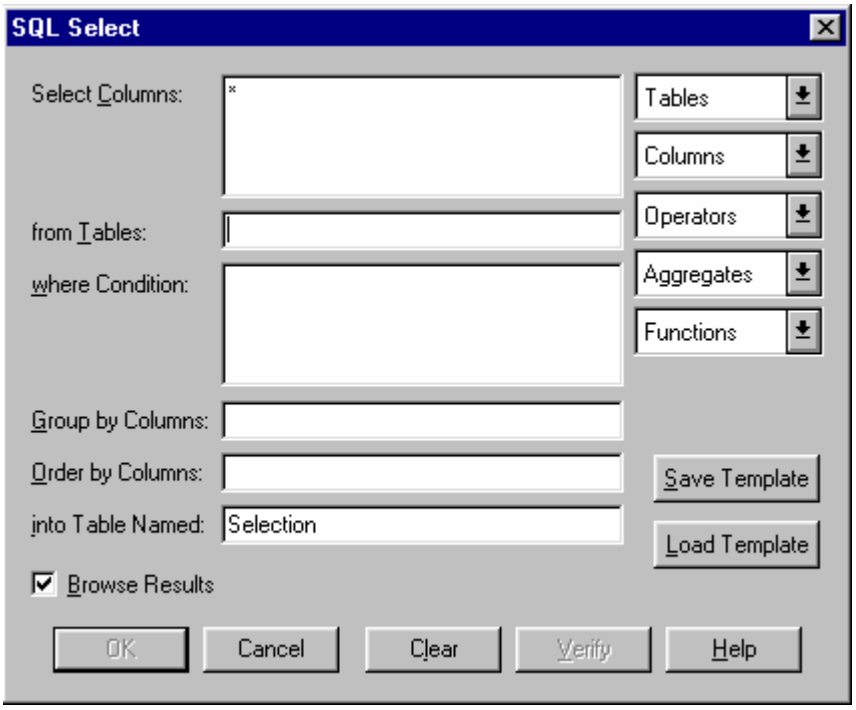
5. Select the table to geocode from the ***Geocode Table*** drop down box.
6. Select the column to geocode with (e.g. Fac_id) from the ***Using Column*** drop down box.
7. Select a search table from the ***Search Table*** drop down box (e.g. georef).
8. Select the column from the ***for Objects in Column*** to use as the field to search and assign records to the geocode table (e.g. Fac_id).
9. Click ***OK***. *MapInfo* will geocode as many records as it can and return a message window displaying the results.



Some of the records may not have been matched due to multiple possibilities, such as proposed facilities that are not yet built, facilities that are closed, etc. The ungeocoded records will have to be examined to determine why they were not geocoded.

To find ungeocoded records:

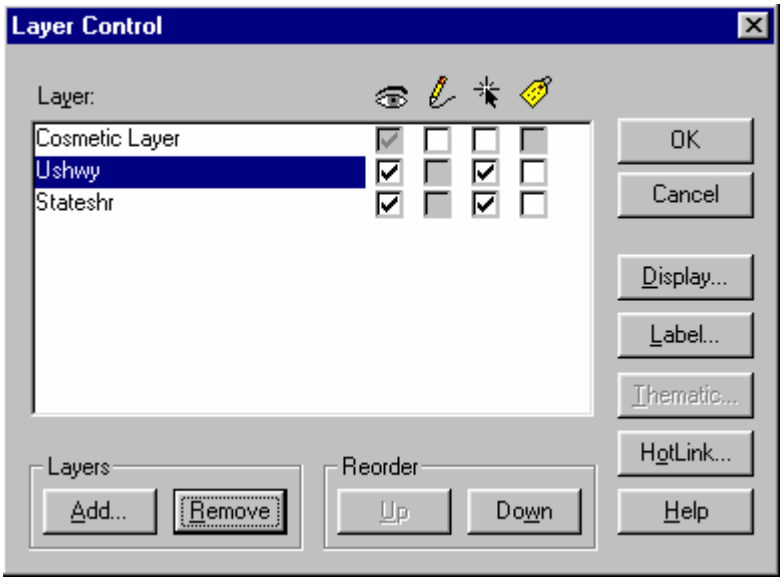
1. Select ***Query > SQL Select***.
2. In the from Tables box enter the table you just geocoded.
3. In the ***where Condition*** enter ***not obj***. This will return all of the records in the table that are not map objects, *i.e.* they have no X and Y coordinates.



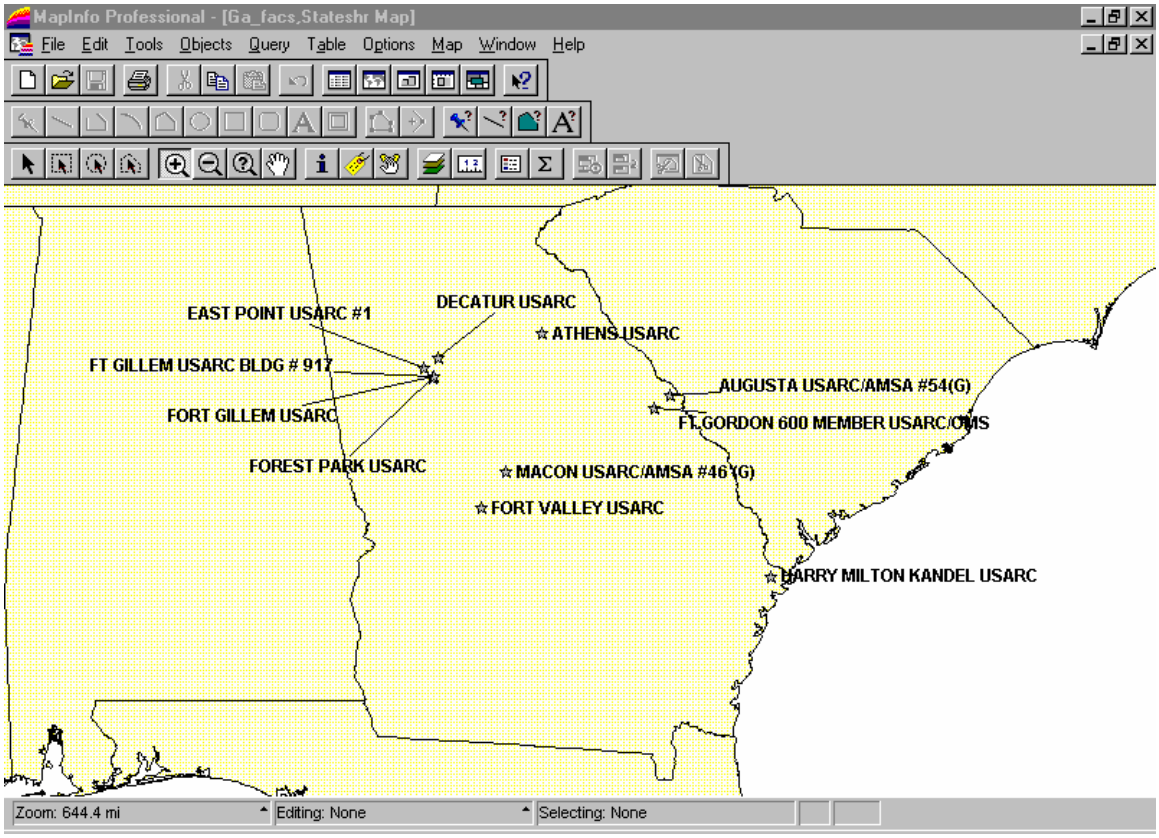
Once you have geocoded the data you can now add that data as a layer to your map.

To add the newly created map your map window:

1. Click on a map window to make it active.
2. Click the ***Layer Control*** button from the *Main* tool bar.
3. ***Add*** and ***Remove*** layers you wish to display.



4. Check the ***Auto label*** checkbox, and auto label the records if desired.
5. Click ***OK***, then zoom-in to the map area where your records are displayed.



The data displayed on the map window and the *Browser* window are linked. By clicking on the boxes to the left of the record in the *Browser* window, the graphic record or object is highlighted on the map. If a record is selected on the map it is also selected in the *Browser* window.

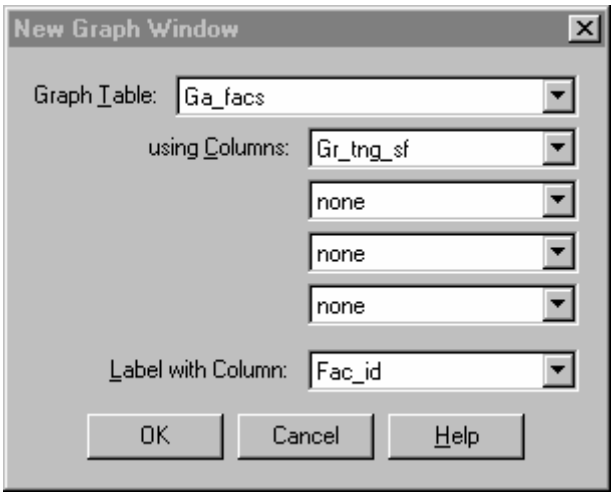
Creating a Graph

MapInfo can create multiple types of graphs based on map or tabular data. When you create a graph *MapInfo* places the graph into a *Graph* window. A *Graph* window is used to visualize statistical information in a graphical format. *MapInfo* allows you to create the following graph types:

- *Area* - Area graphs represent quantities as the size of an area on the graph
- *Bar* - Bar graphs are used to compare a relatively small number of discrete items
- *Line* - Line graphs plot data points at equal intervals along the label axis, connecting the points with the line
- *Pie* - Pie graphs, also referred to as pie charts, show the relative proportions of items, with quantities represented by the area of the pie wedge
- *X-Y* - X-Y graphs plot points according to their X and Y coordinates without any connecting line

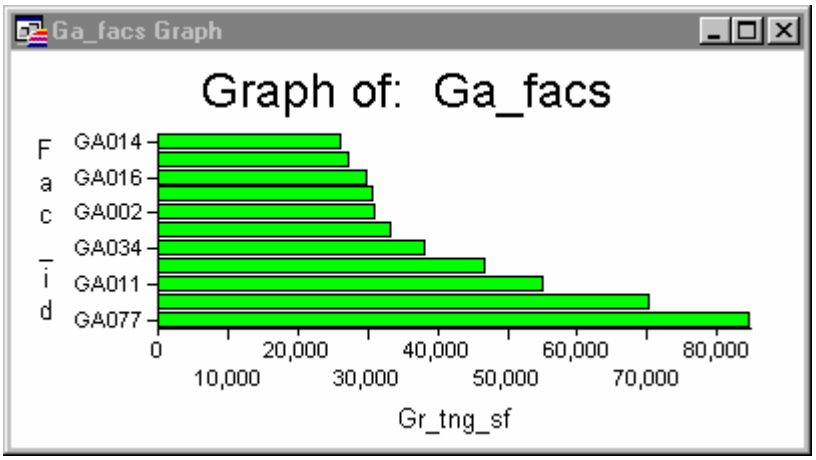
To graph data:

1. Click ***Window*** from the menu bar.
2. Select ***New Graph Window***.



3. Click on the down arrow next to the ***Graph Table*** drop down box.
4. Select a table to graph.
5. Under the ***using Columns*** drop down boxes select the fields you would like to graph. These fields must be numeric fields.
6. Click on the down arrow next to the ***Label with Column*** and select a column to label with. For example, if you graphing the gross training square foot you would want to label with Fac_id.
7. Click ***OK***.

The graph of the query is displayed. Resize the graph, if necessary, to make it more legible.



You may want to change the type of graph to display your data. To change the graph type:

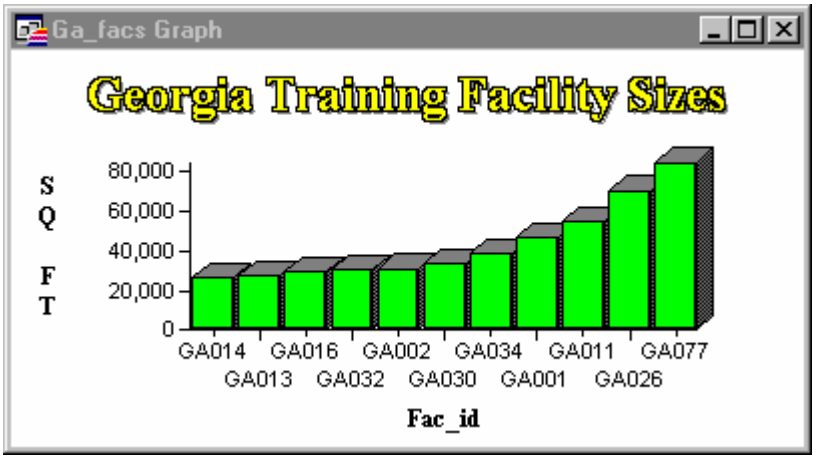
1. Make the ***Graph*** window active.
2. Click ***Graph*** from the menu bar.

3. Select ***Graph Type***.
4. The ***Graph Type*** window allows the user to change the graph title, font, color and the graph type. Select the ***Bar*** radio button under ***Graph Type*** and change the title.

5. Select any options under the ***Options*** box.
6. In the ***Graph Title*** entry field type in a name for the graph.
7. Click on the ***Style Button***

to the right of the ***Graph Title*** to change the font, size and color of the text.
8. In the ***Options*** check box uncheck the ***Rotated*** option.
9. Change the Axis settings under the ***Graph*** menu options.
10. Click ***OK***.

Now the graph has an appropriate title, fonts, and has been rotated.



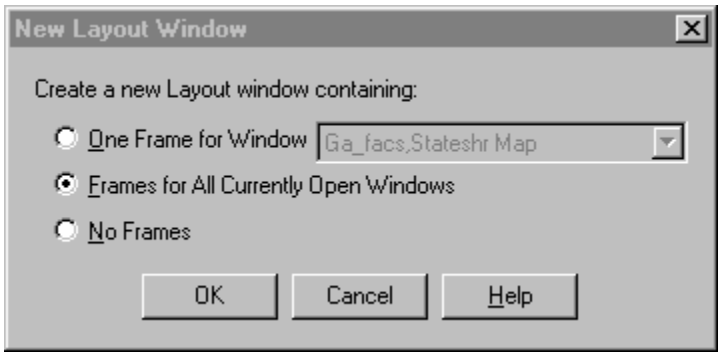
You may need to further customize your graph.

Creating a Layout Window

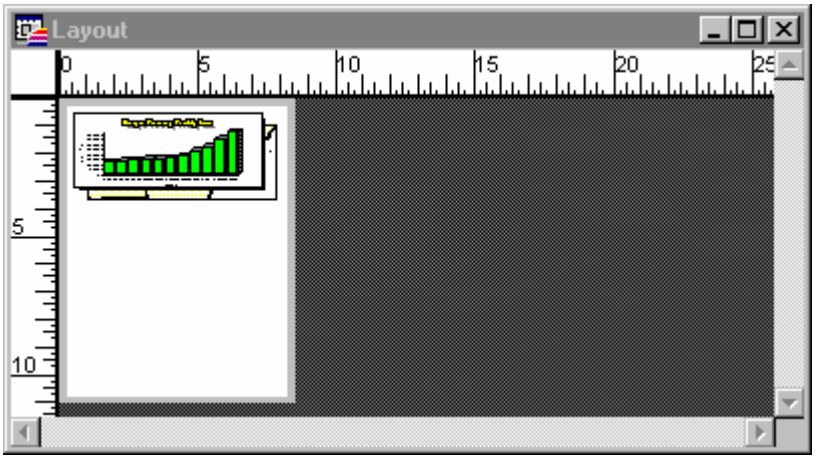
MapInfo's *Layout* window is a page layout feature that allows you to combine your different windows on a page and arrange them for output. For example, you may have a *Browser* window and *Graph* window open simultaneously and want to print both of the windows together on one page or plot, and add text such as titles and labels to pull the entire presentation together. A *Layout* window allows you to do this as well as preview the page before printing.

To create a layout:

1. Close the windows that you do not wish to appear in your layout.
2. Select the desired printer, paper size and page orientation from the ***File > Page Setup*** window. See the ***Page Setup*** section for more detail.
3. Click ***Window*** from the menu bar.
4. Select ***New Layout Window***.



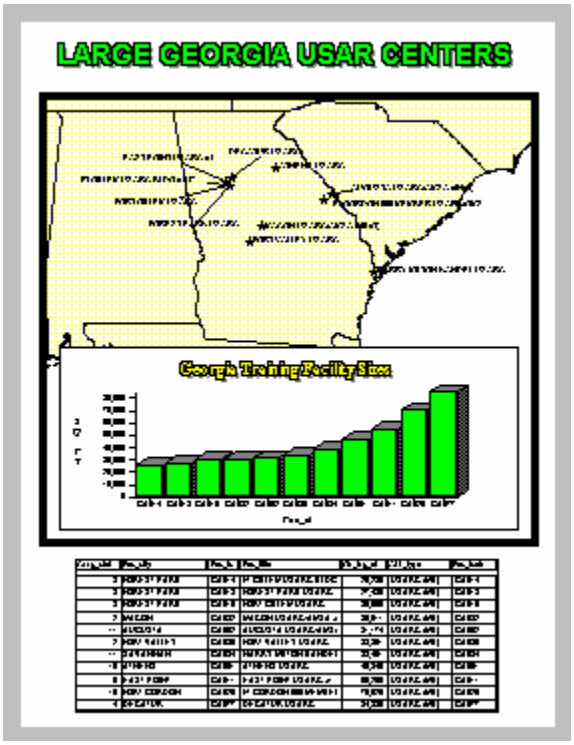
5. Choose ***Frames for all Currently Open Windows*** to add all of the currently open windows to the ***Layout*** window.
6. Click ***OK***.



To customize the Layout window:

1. Maximize the ***Layout*** window, and select ***View Entire Layout*** from the ***Layout*** menu option.
2. Move and resize the frames in the *Layout* window as needed.
3. Add a title using the ***Text*** tool from the *Drawing* tool bar.
4. Double click on the title itself, or select the ***Text Style*** tool from the *Drawing* tool bar to change the font, size, spacing, etc.
5. Change the margins by selecting ***Options*** from the ***Layout*** window and clicking the ***Margins*** button.
6. Click the ***Legend*** button to add a legend to the *Layout* window.
7. To add a new window to the *Layout* window, click the ***Frame*** button from the *Main* tool bar.

A finished layout should look something like the one below.



Workspaces

Any combination of open windows in a *MapInfo* workspace can be saved for later use. A workspace is a saved configuration of open *MapInfo* tables and windows.

Saving a Workspace

To save a project to a workspace:

1. Click ***File*** from the menu bar.
2. Select ***Save Workspace***. A workspace will always contain the **.WOR** extension. Remember to always save workspaces to your C:\ drive, never to the LAN.
3. Within the ***Save Workspace*** window, specify a name and a directory to store the workspace and click ***Save***.

Opening Workspaces

To open a saved workspace:

1. Click ***File*** from the menu bar.
2. Select ***Open Workspace***.
3. Select the workspace to open and click ***Open*** or double-click on the file name.

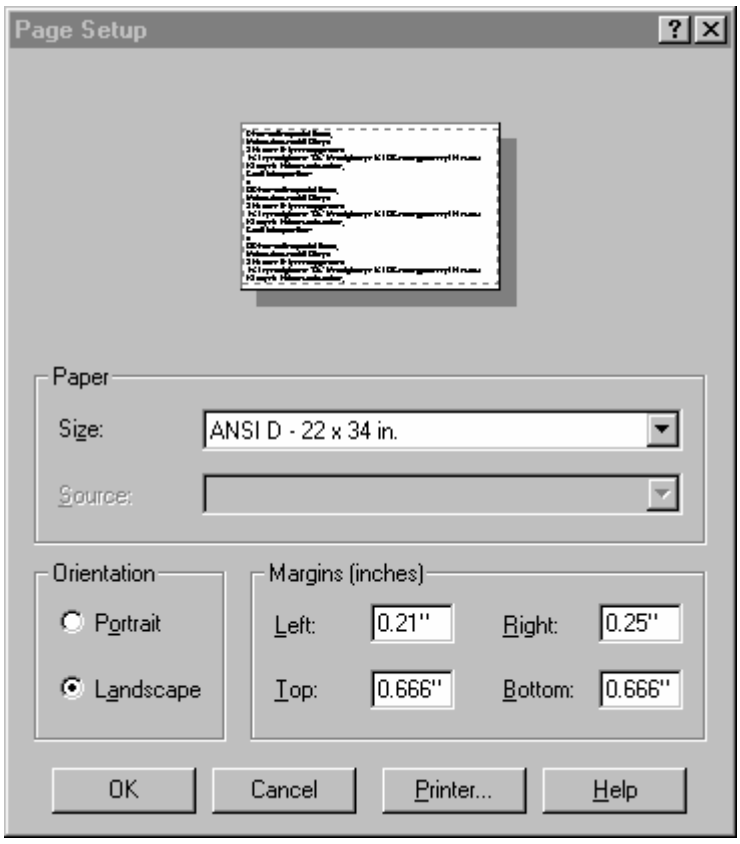
Printing and Plotting Maps

Map, *Graph*, *Browser*, or *Layout* windows can be printed at any time. When printing or plotting *MapInfo* will print the active window. The *Map, Graph and Layout* windows are WYSIWYG (what you see is what you get). If printing a *Browser* window, *MapInfo* will print everything contained in the *Browser*. To print multiple windows together use a *Layout* window.

Page Setup

To specify the page setup for a map, graph, browser, or layout:

1. Set the print options by selecting ***File*** from the menu bar and then ***Page Setup***.

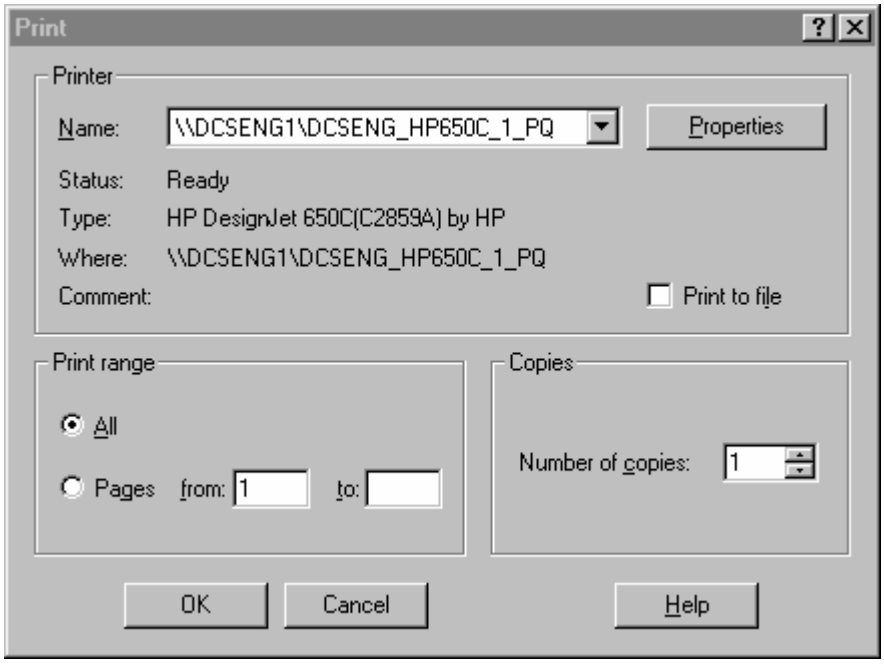


2. Select the correct printer under ***Printer***.
3. Select the orientation under ***Orientation***.
4. Select the size under ***Paper***.
5. Click ***OK***.

Printing a Window

To print a Map, Graph, Browser, or Layout window:

1. Select ***File*** from the menu bar then ***Print*** from the menu options.
2. From the ***Print*** window you can change the ***Print range*** and ***Copies*** if desired.



3. Click ***OK***.

Plotting a Map

A map can be sent to a plotter to be printed in color for large-scale map production. To plot a map you must set the print options within ***Page Setup***.

Redirect the output source to the plotter by:

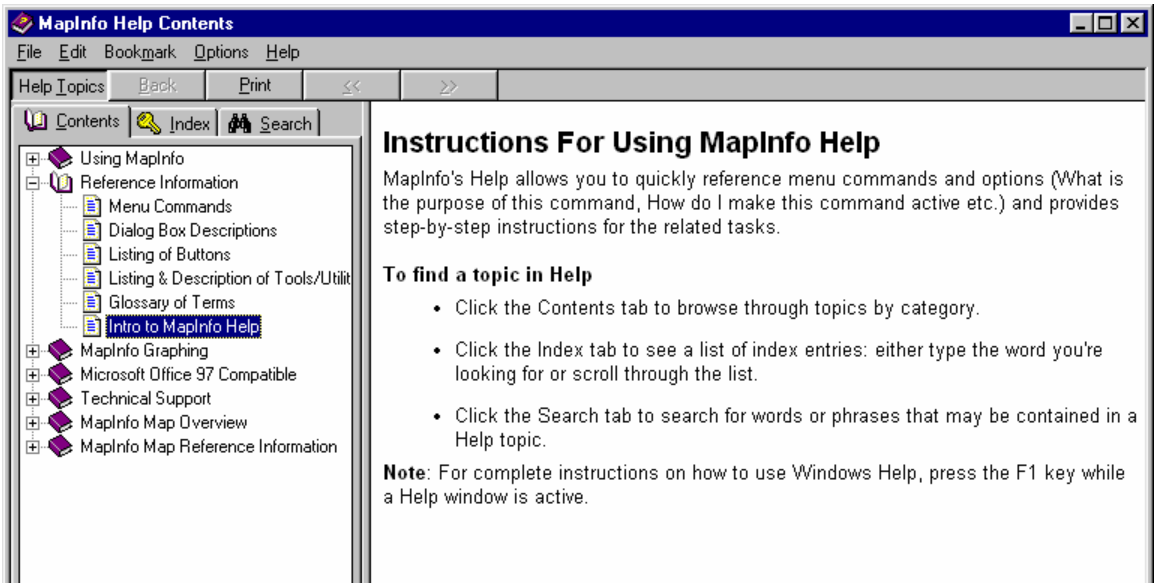
1. Select ***File*** from the menu bar.
2. Choose ***Page Setup***.
3. Select the ***Specific Printer*** radio button and then select the **HP DESIGNJET 650C**.
4. Under ***Paper*** change the size of the paper.
5. Click ***OK***.

Once the page setup options have been selected plot the map by selecting ***File*** from the menu bar and then ***Print***.

MapInfo On-Line Help

MapInfo has extensive on-line help. To access MapInfo on-line help:

1. Select ***Help > MapInfo Help Topics*** from the menu bar. The following window will appear.


MapInfo Help Contents
File Edit Bookmark Options Help
Help Topics Back Print
Contents Index Search
Using MapInfo
Reference Information
Menu Commands
Dialog Box Descriptions
Listing of Buttons
Listing & Description of Tools/Utilit
Glossary of Terms
Intro to MapInfo Help
MapInfo Graphing
Microsoft Office 97 Compatible
Technical Support
MapInfo Map Overview
MapInfo Map Reference Information
Instructions For Using MapInfo Help
MapInfo's Help allows you to quickly reference menu commands and options (What is the purpose of this command, How do I make this command active etc.) and provides step-by-step instructions for the related tasks.
To find a topic in Help
Click the Contents tab to browse through topics by category.
Click the Index tab to see a list of index entries: either type the word you're looking for or scroll through the list.
Click the Search tab to search for words or phrases that may be contained in a Help topic.
Note: For complete instructions on how to use Windows Help, press the F1 key while a Help window is active.

2. The *MapInfo* help utility follows the windows standards.

Exiting MapInfo

To exit *MapInfo* click ***File*** from the menu bar then ***Exit***.

Basic MapInfo

Practical Exercise

Scenario

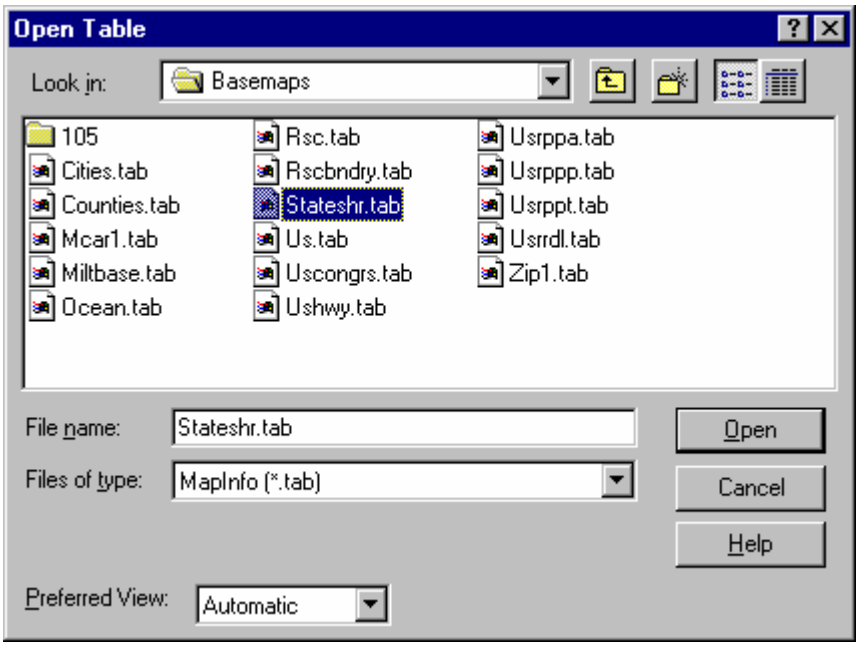
The Congressman and his colleagues have requested graphic representation of the data and reports that are required for your presentation. The following section and practical exercise will guide you through the process of creating maps, graphs, and charts and perform spatial analysis. The maps and graphics created will be inserted into the PowerPoint presentation for the Congressman and his colleagues.

The following practical exercise will demonstrate some of *MapInfo*'s basic functions. *MapInfo* is extremely powerful and, therefore, sometimes complicated. The basic map-making functions will be demonstrated. You will learn how to open existing maps and create new ones. The queries that were created in the *Data Bridge* practical exercise will be used to demonstrate how tabular data can be displayed on a map for visual and spatial analysis.

To start the practical exercise click on the *MapInfo* icon from the *MapInfo* program group.

Open the States Table

1. Select ***File*** from the menu bar.
2. Select ***Open Table***.



3. Select ***T:\ENBOSS\ARGISS\BASEMAPS\STATESHR.TAB***.
4. Click ***OK***. A map of the United States will appear in a *Map* window.

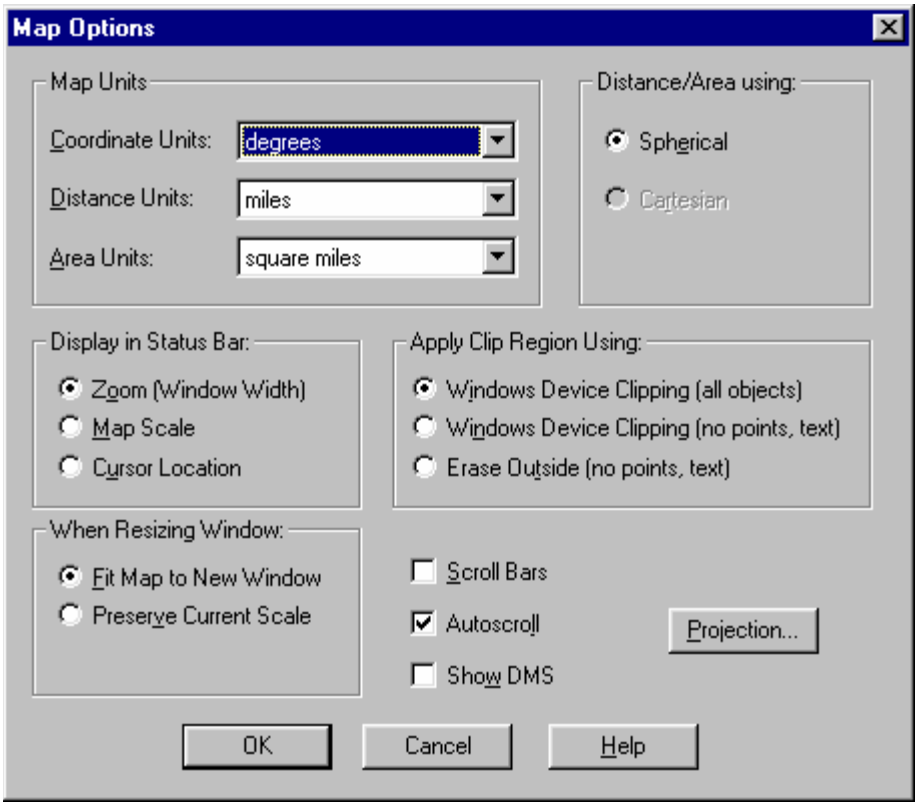
Zoom In, Zoom Out and Grab

Use the *Zoom In* , *Zoom Out* and the *Grabber* tools to navigate around the map and change views. Practice using these tools for a couple of minutes.

Change the Map Options

To change the map options:

1. Select ***Map*** from the menu bar.
2. Select ***Options***.



3. Add scroll bars to the map window by checking the ***Scroll Bars*** check box.
4. Change the ***Distance Units*** to kilometers.
5. Click ***OK***.

Open the RSC Boundary Table

1. Select the ***File*** menu from the menu bar.
2. Select ***Open Table.***
3. Select ***T:\ENBOSS\ARGISS\BASEMAPS\RSCBNDRY.TAB***.
4. Click ***OK***.

Open the Ocean Table

1. Select the ***File*** menu from the menu bar.
2. Select ***Open Table***.
3. Select ***T:\ENBOSS\ARGISS\BASEMAPS\OCEAN.TAB***.
4. Click ***OK***.

Open the Population Table

1. Select the ***File*** menu from the menu bar.
2. Select ***Open Table***.
3. Select ***T:\ENBOSS\ARGISS\BASEMAPS\USRPPA.TAB***.
4. Click ***OK***.

Shortcut – *Press and Hold* ***Ctrl*** *to select and open multiple records.*
Press and Hold ***Shift****, click on first and last files to select a range of files.*

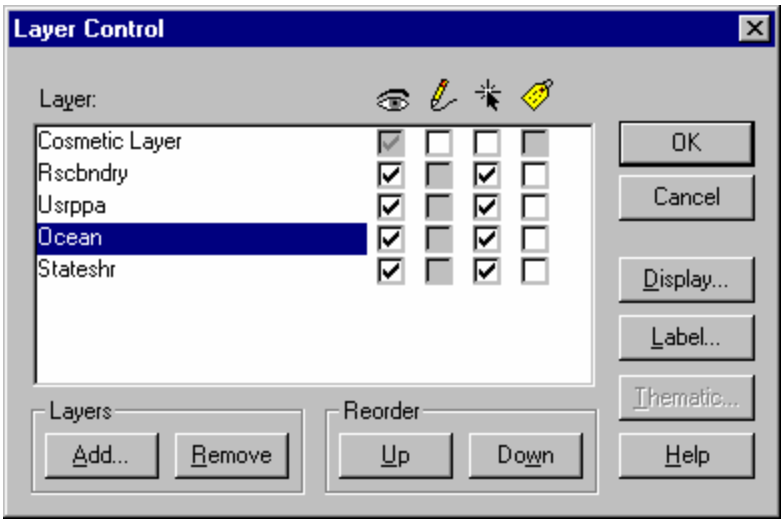
You have opened four tables. However, notice how the ocean table covers the states table. To correct this you must go to your layer control.

Access the Layer Control

To access the *Layer Control* window:

1. Click the ***Layer Control*** button or select ***Map > Layer Control***. Notice that the *Ocean* table is above the States table in your layer control.

Shortcut – *Place the cursor inside the map window and right click on your mouse then select Layer Control.*



2. Select the ***Ocean*** layer and use the ***Down*** button under ***Reorder*** to push the *Ocean* layer down to the bottom.
3. Click ***OK***.

Use the Label Tool

The next few steps will show you how to label objects interactively. Later we will learn how to label objects automatically.

1. Select the ***Label*** button from the ***Main*** toolbar.
2. Position the cursor over a state and click the left mouse button.

Delete the Labels

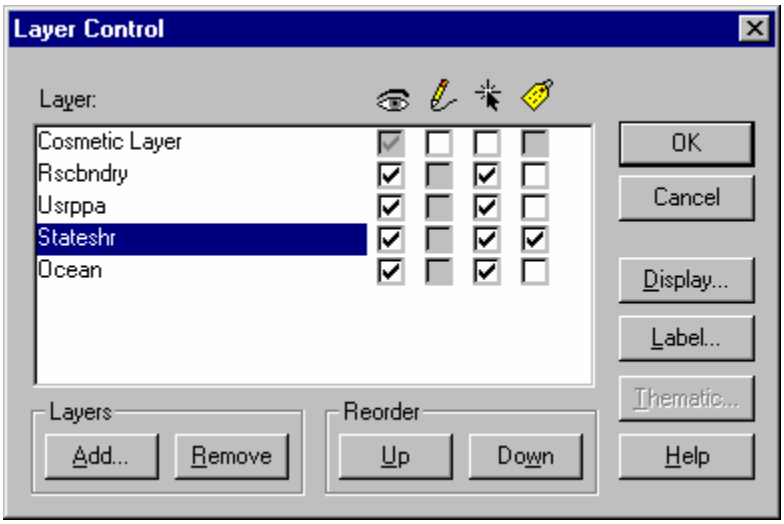
1. Use the ***Select*** button to select the label you want to delete.
2. Press the delete key.
3. To delete all of the labels select ***Map > Clear Custom Labels***.

AutoLabel

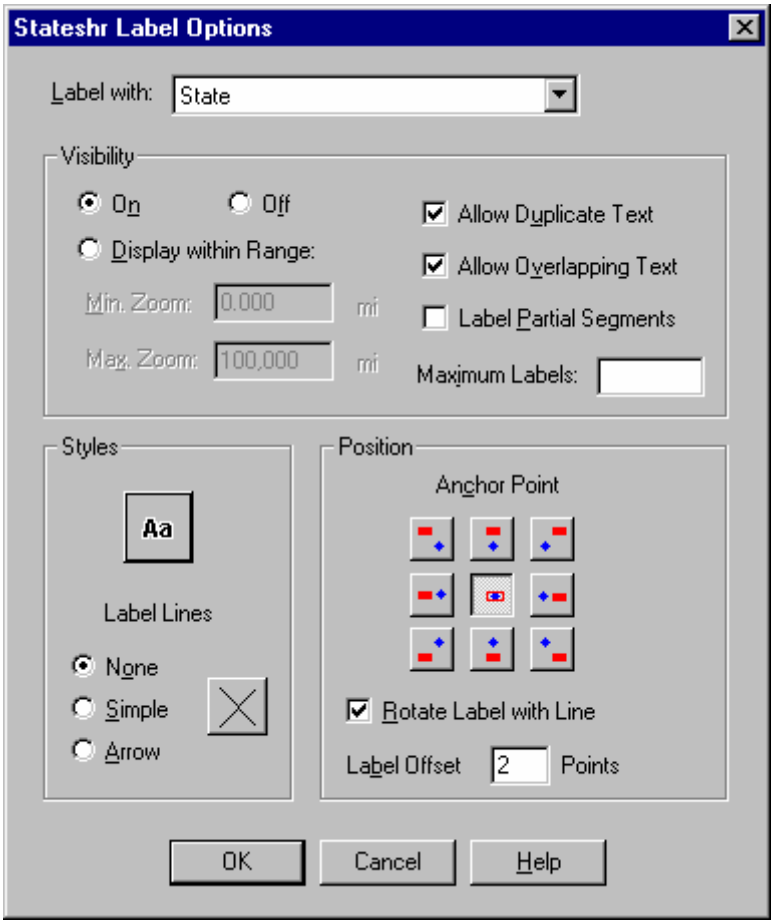
The next steps will change the default font of the labels and label all of the states in the *Stateshr* layer.

1. Select ***Map > Layer Control*** or click the Layer Control button .

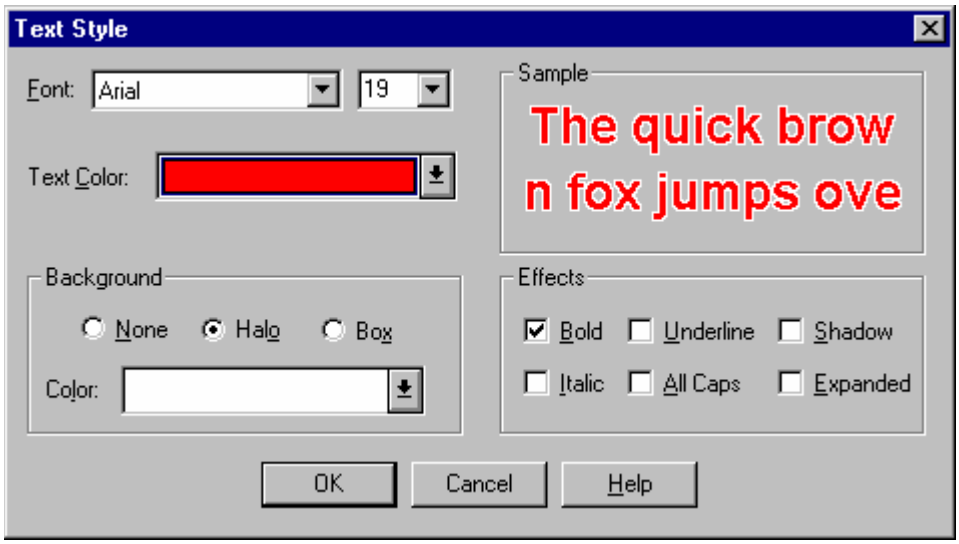
Shortcut – *Place the cursor inside the map window and right click on your mouse then select Layer Control..*



2. Select the ***Stateshr*** layer.
3. Select the ***AutoLabel*** check box.
4. Select the ***Label*** button.



5. Check the ***Allow Overlapping Text*** check box.
6. Click the ***Style*** button under the ***Styles*** options.



7. Change the font size to ***18*** and the Text Color to ***red***.
8. Check the ***Bold*** and ***Underline*** check boxes under the Effects section.
9. Click ***OK***.

10. Click ***OK*** on the **Stateshr Label Options** window.
11. Click ***OK*** on the **Layer Control** window.

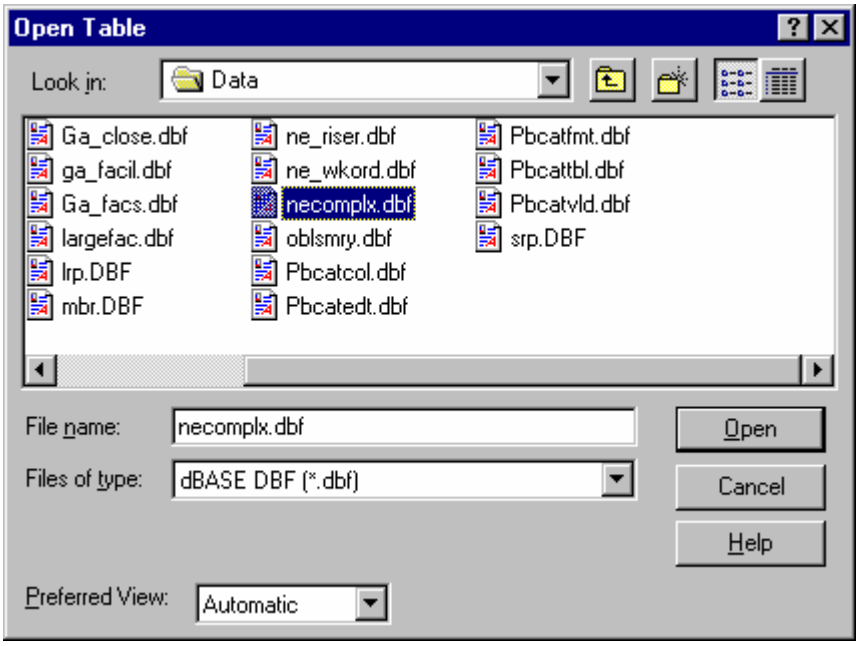
Turn the AutoLabel Off

1. Open the ***Layer Control*** window.
2. Uncheck the ***AutoLabel*** check box for the **Stateshr** layer.
3. Click ***OK***.

Open a DBF File

You will now open NECOMPLX. This is a .dbf file that was saved as a result of the STATE_FACILITIES query that was developed in the *Data Bridge* practical exercises. NECOMPLX contains facility information from EMAAR for the state of Nebraska.

1. Select ***File*** from the menu bar.
2. Select ***Open Table*** from the menu items.



3. Under ***List Files of Type*** select ***dbase DBF***. All the available DBF files will populate in the ***File*** box.
4. Select the ***NECOMPLX.DBF*** table from the **C:\Program Files\ENBOSS\ARGISS\FPS\DATA** directory.
5. Click ***OK*** on the ***Open Table*** window.
6. Click ***OK*** in the ***dBASE DBF Information*** window.

Geocode the DBF File

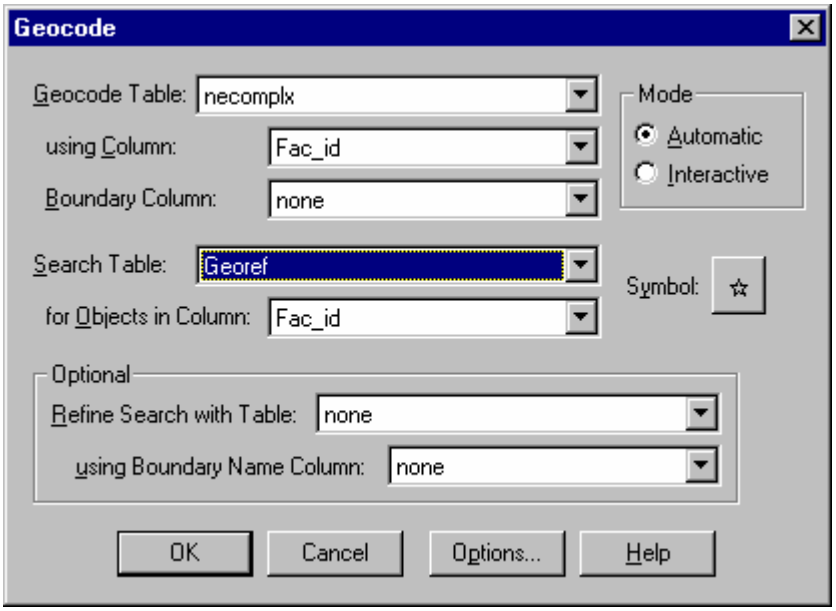
You will now geocode, or assign latitude and longitude coordinates, to the NECOMPLX table. The geocoding process will put the data on a map for visual and spatial analysis. However, before

you can geocode NECOMPLX you must open a table to geocode it against, the GEOREFERENCE table.

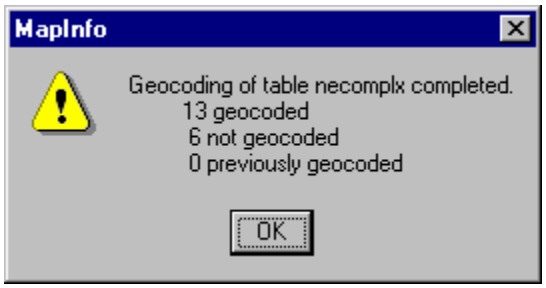
1. Select ***File > Open Table***.
2. Select the ***georef.tab*** from ***T:\ENBOSS\ARGISS\DATASET***.
3. Select ***No View*** from the ***Preferred View*** drop down box since this table has already been geocoded and we do not want to add it to the map window.
4. Click ***OK***.

Now you are ready to geocode the NECOMPLX table.

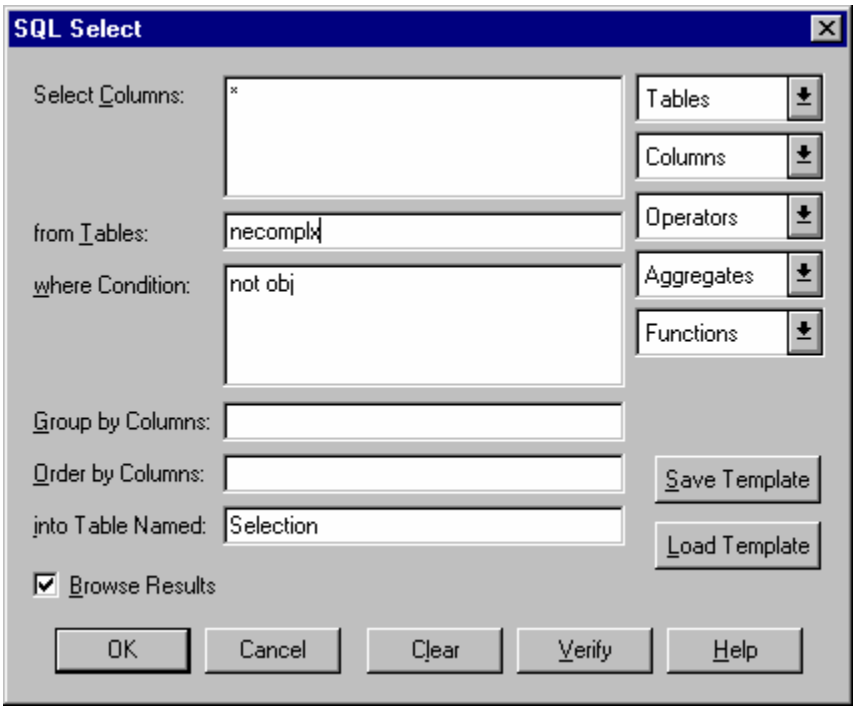
1. Select ***Table*** from the menu bar.
2. Select ***Geocode*** from the menu items.



3. Select ***NECOMPLX*** as the table to geocode from the ***Geocode Table*** drop box.
4. Select ***Fac_id*** as the column to use under the *using* ***Columns*** drop down box.
5. Select the ***Georef*** table as the table to search in the ***Search Table*** drop down box.
6. Select ***Fac_id*** as column to geocode with in the ***for Objects in Columns*** drop down box.
7. To change the symbol, color and size click the ***Symbol*** button.
8. Click ***OK***.
9. Click ***OK*** on the *MapInfo* window displaying how many records were geocoded.



10. From the ***Query*** menu, perform and ***SQL Select*** to examine the records that are not objects since they were not geocoded.



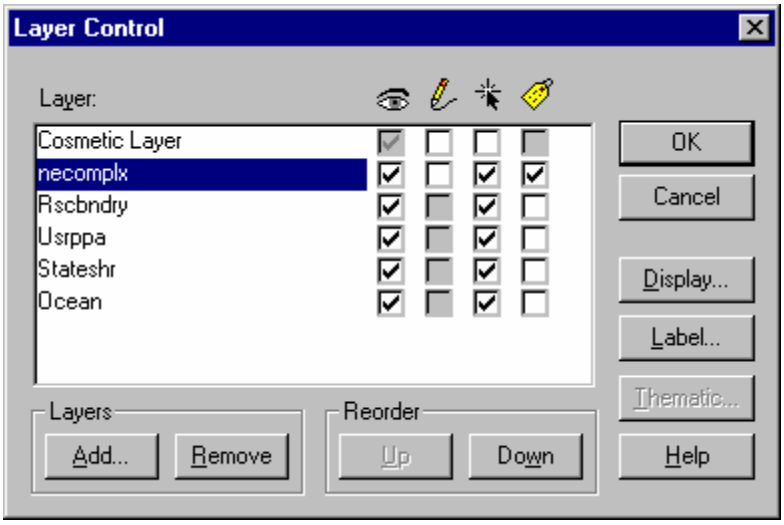
11. Browse the results and see if any of the facilities are proposed, or were closed.

Add the Database to the Map Window

1. Click on the map window to make it active, and click the ***Layer Control*** button .
2. Under ***Layers*** click the ***Add*** button.
3. Select ***NECOMPLX*** from the list of tables. Click ***OK***.
4. Click ***OK*** from the ***Layer Control*** window. The NECOMPLX data will now display on the map.

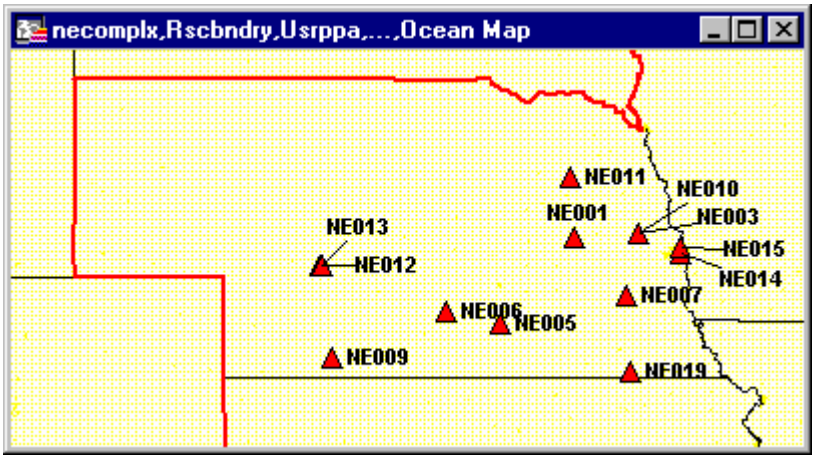
AutoLabel NECOMPLX

1. Click the ***Layer Control*** button .
2. Highlight the ***NECOMPLX*** layer and click the ***AutoLabel*** check box.



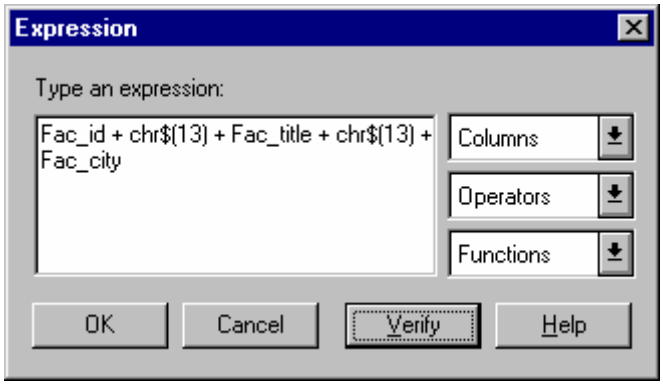
3. Click the ***Label*** button to change the label options.
4. In the ***Label With*** box select ***Fac_id***.
5. Check the ***Allow Overlapping Text*** check box.
6. Click the ***Aa*** button under the ***Styles*** options.
7. Change the color of the text by selecting a different color in the ***Text Color*** box.
8. Change the text size to **8** in the font size drop down box.
9. Click ***OK***.
10. Click ***OK*** on the ***Layer Control*** window.

The map window should now contain all of the facilities in Nebraska labeled by Fac_id. Zoom-in to Nebraska to view the facilities.

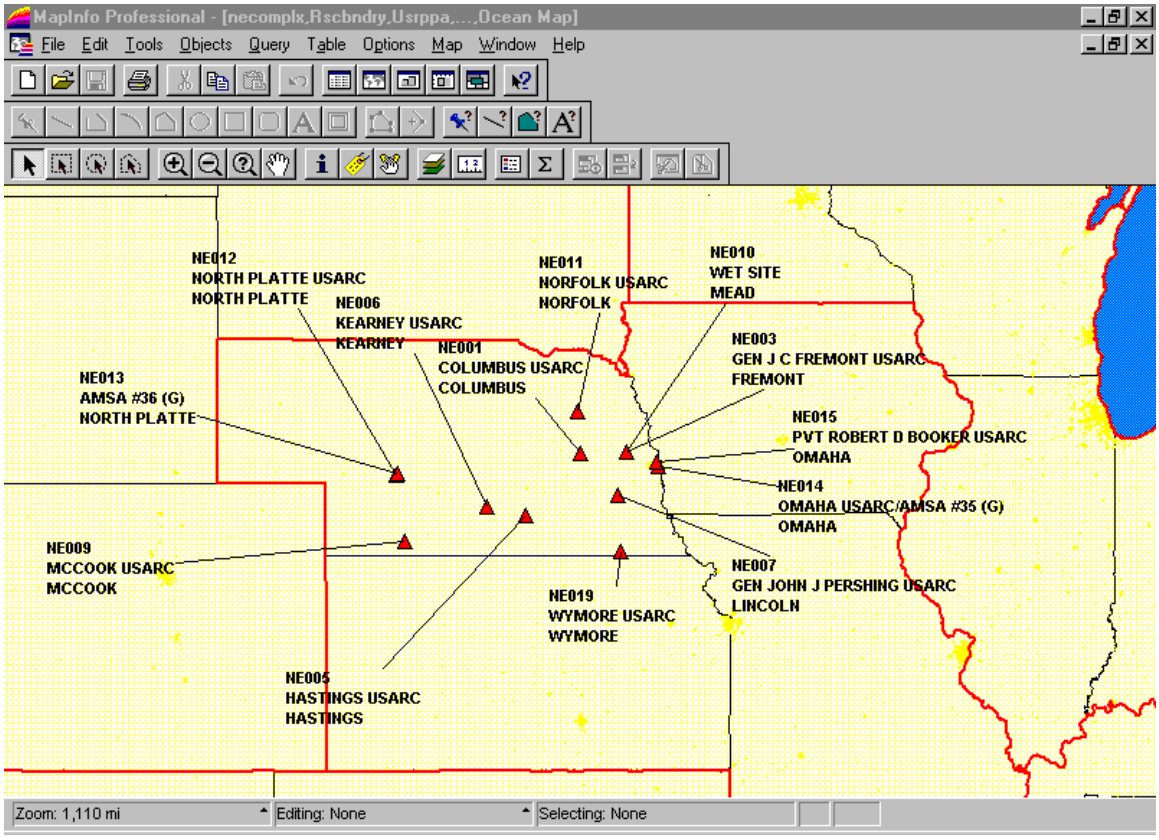


Label the Facilities with Fac_id, Fac_title and Fac_city

1. Click the ***Layer Control*** button.
2. Highlight ***NECOMPLX***.
3. Click the ***Label*** button.
4. In the ***Label With*** box, scroll to the bottom and select ***Expression***. The following window will appear.

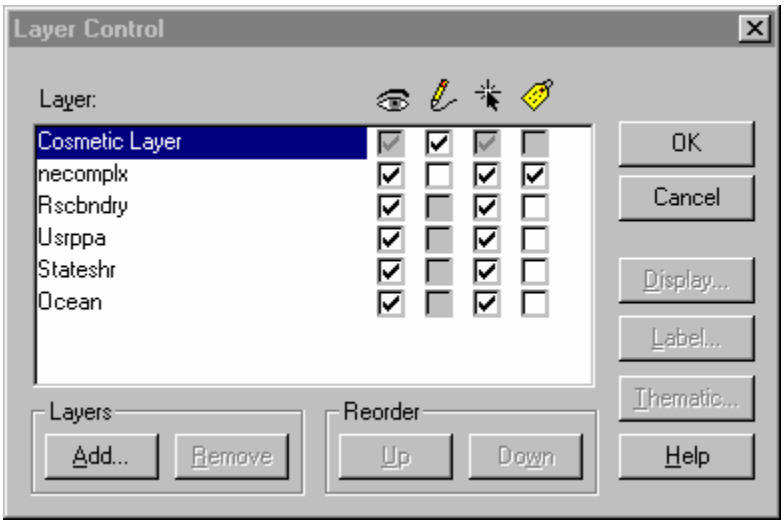


5. Type in the following expression: ***Fac_id + chr$(13) + Fac_title + chr$(13) + Fac_city***.
6. Click ***Verify***.
7. If the expression is valid click ***OK***. If not, re-enter the expression.
8. Click ***OK*** from the ***Label Options*** window.
9. Click ***OK*** from the ***Layer Control*** window. The map is now labeled with Fac_id, facility title and the city that the facility is located in.
10. Maximize the map window, zoom-out, and click and drag on the labels to spread them out.

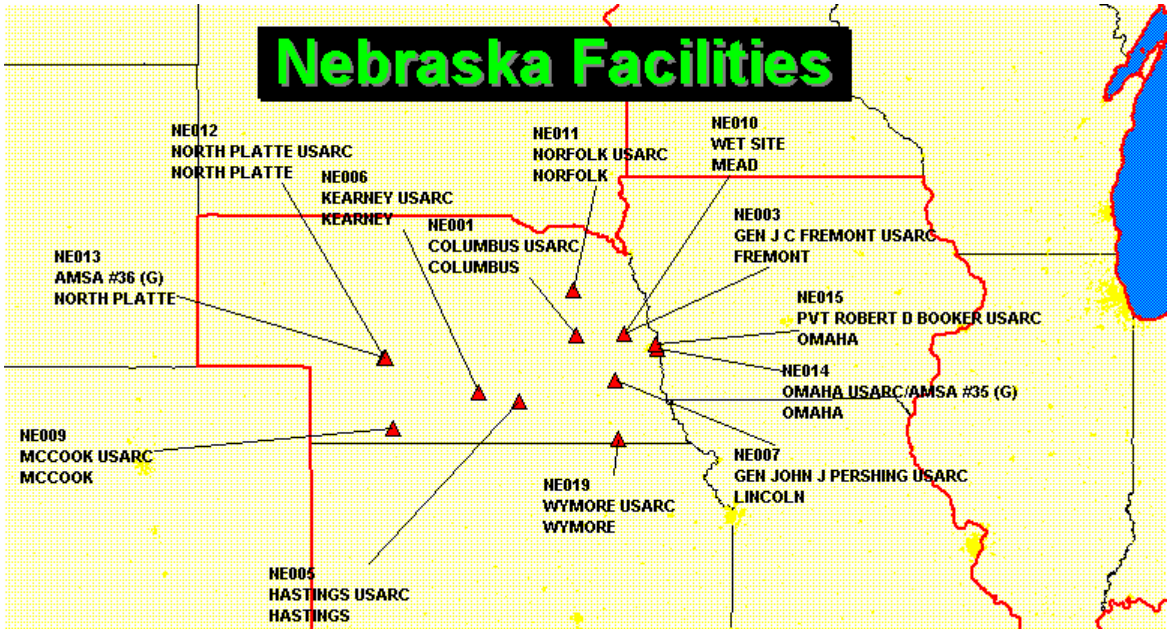


Add a Title to NECOMPLX

1. Click the ***Layer Control*** button .
2. Make the ***Cosmetic Layer*** editable by checking the ***Editable*** check box.
3. Click ***OK***.



4. Select the ***Text Style*** button from the ***Drawing*** toolbar and choose a font size and color. Click ***OK***.
5. Click the ***Text*** button from the ***Drawing*** toolbar.
6. Position the pointer where you want to place the title and click the left mouse button.
7. Type a title.



Print NECOMPLX

1. Select **File > Page Setup**, and change the Orientation to Landscape.

2. Select **File > Print** and print the map.

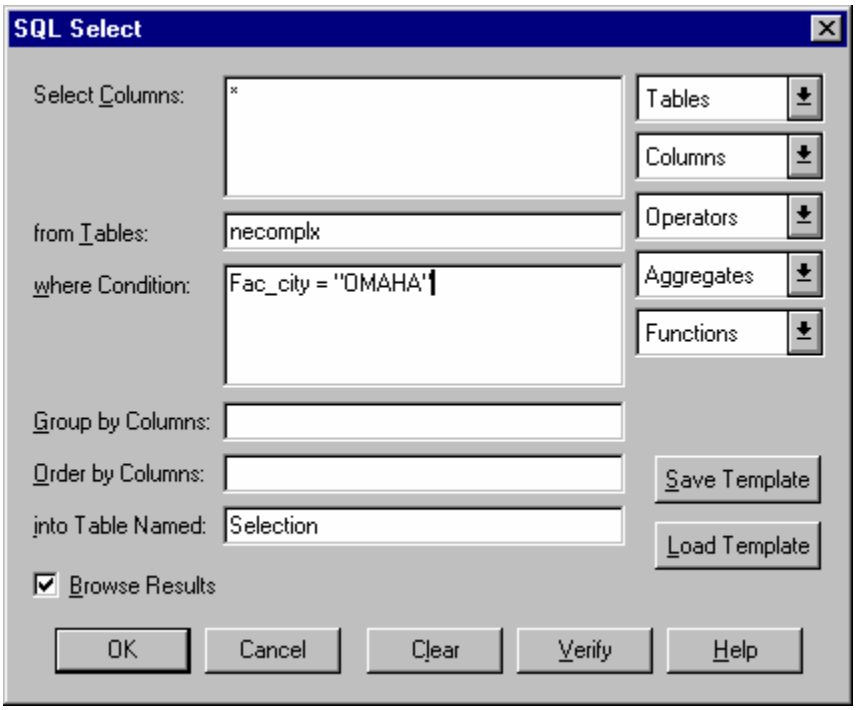
Save the Windows as a Workspace

1. Select ***File*** from the menu bar.
2. Select ***Save Workspace***.
3. Save the workspace as ***NEFACS.WOR*** to the **C:\Program Files\ENBOSS\ARGISS\FPS\DATA** directory.
4. Click ***OK***.

Query NECOMPLX Using SQL Select

You will now use the *SQL Select* function to query the NECOMPLX table for all facilities located in the city of Omaha.

1. Select ***Query*** from the menu bar.
2. Select ***SQL Select*** from the menu items.



3. In the ***from Tables*** text box enter ***NECOMPLX*** or select it from the ***Tables*** drop down box.
4. In the ***where Condition*** field, enter ***Fac_city = "OMAHA"***.
5. Click ***Verify***.
6. If expression is valid click ***OK***. If not, re-enter the expression.

All of the facilities located in the city of Omaha will appear in a *Browser* window and will be selected on the map.

Save the Query as a Permanent Table

To save the query as a permanent table:

1. Select ***File*** from the menu bar.
2. Select ***Save Copy As*** from the menu items.
3. Highlight the correct query number and click ***Save As***.
4. Save the query as ***OMAHA.TAB*** and save it to the **C:\ENBOSS\ARGISS\FPS\DATA** directory.
5. Click ***OK***.

Zoom In to Omaha

Using the *Zoom In* button zoom into the Omaha area. The facilities within Omaha should be highlighted on the map.

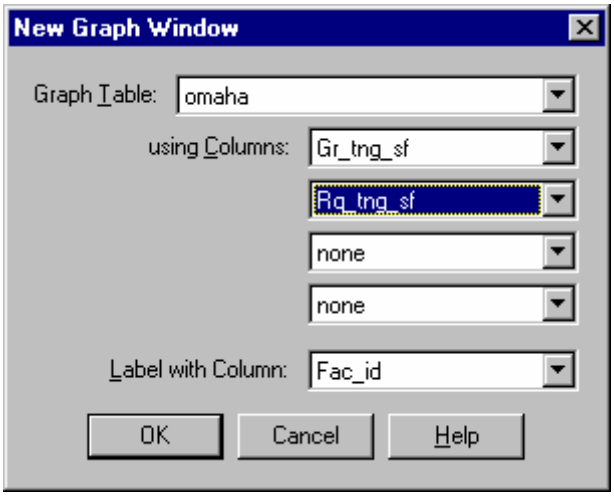
Open the OMAHA Table

You will now open the query you just saved as a permanent table, OMAHA.

1. Select ***File > Open*** Table.
2. Select the ***OMAHA.TAB*** table from the **C:\ENBOSS\ARGISS\FPS\DATA** directory.
3. Click ***OK***.

Create a Graph for the Omaha Facilities

1. Select *Window* from the menu bar.
2. Select ***New Graph Window*** from the menu items.



3. Select the Omaha table as the ***Graph Table***.
4. In the ***using Columns****:* drop down boxes select ***Rq_tng_sf*** and ***Gr_tng_sf***.
5. Click ***OK***.

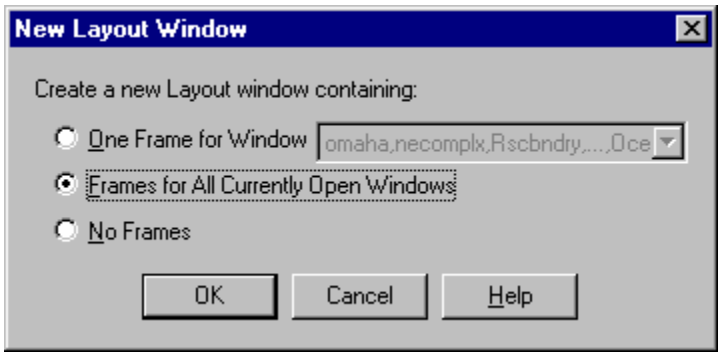
To add a legend to the graph:

1. Click the ***Show/Hide Legend*** button from the *Main* toolbar.
2. Double click on the legend to change the options.
3. Add a title and a subtitle.
4. Click ***OK***.

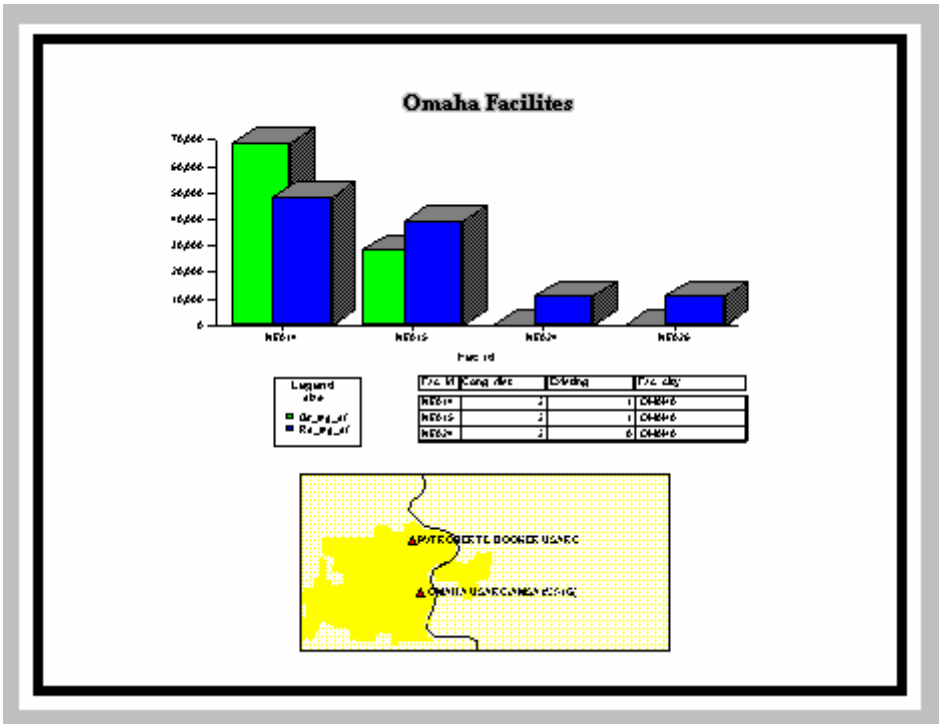
Create a Layout Window

You will now create a *Layout* window to place all of the open screens into one page.

1. Close all windows that you do not wish to appear in the layout (leave only the map window, the OMAHA browser window, the graph window, and the legend open).
2. Arrange the map window to display what you want.
3. Click ***Window*** from the menu bar.
4. Select ***New Layout Window*** from the menu items.



5. Select the ***Frames for All Currently Open Windows*** radio button automatically insert all open windows into the layout.
6. Click ***OK***.
7. A ***Layout*** window with all of the currently opened windows will appear. Rearrange and resize the windows as necessary.
8. Click the ***Text*** tool from the *Main* toolbar and add a title to the layout by clicking on the *Layout* where you want to place the title.



9. Select ***File > Save Workspace***.
10. Save your work as ***OMAHA.WOR*** to the **C:\Program Files\ENBOSS\ARGISS\FPS\DATA** directory.
11. Select ***File > Print*** to print the *Layout* window.

Conclusion

The *MapInfo* practical exercise gave you a basic understanding of *MapInfo* functionality. Desktop GIS can be a valuable tool to engineers, planners, real estate specialists and facility managers. You are encouraged to practice using *MapInfo* after the conclusion of this class. The following sections will build upon what you have learned in this section.

To summarize you created the following maps and workspaces for the Congressman's presentation:

- **NEFACS** - Map of Nebraska facilities labeled by Fac_id, Fac_title and Fac_city
- **OMAHA** - Layout window of Omaha facilities with a corresponding graph comparing gross training square feet to required training square feet

Both of these maps should have been printed and saved as a workspace. We will open these workspaces again in the Conclusion and Overview section**.**

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Advanced MapInfo Features

Objectives

The following is a list of skills and functions the student will gain through this section:

- Using StreetWorks
- Updating the Georeference Table
- Creating New Base Maps
- Geocoding Data
- Adding and Creating Custom Symbols
- Displaying Raster Images

Again, the following section is to give the user an advanced understanding of *MapInfo Professional*. It is recommended that the user experiment with the additional functionality not covered in this section.

Using StreetWorks

StreetWorks, made by *MapInfo Professional*, contains extensive county level street maps. StreetWorks contains highways, city boundaries, townships, landmarks, waterways, hospitals, airports, cemeteries, libraries, parks, schools, and other major points of interest. Each RSC has a copy of StreetWorks for the states in their region. The HQ USARC has a copy for the entire United States and Puerto Rico.

StreetWorks county street maps contain many separate layers or tables that can be turned on and off depending on what you want to display. The following table lists the file naming conventions that *MapInfo* uses in StreetWorks, using King County, Washington as an example:

Table III-4 StreetInfo Table Naming Conventions

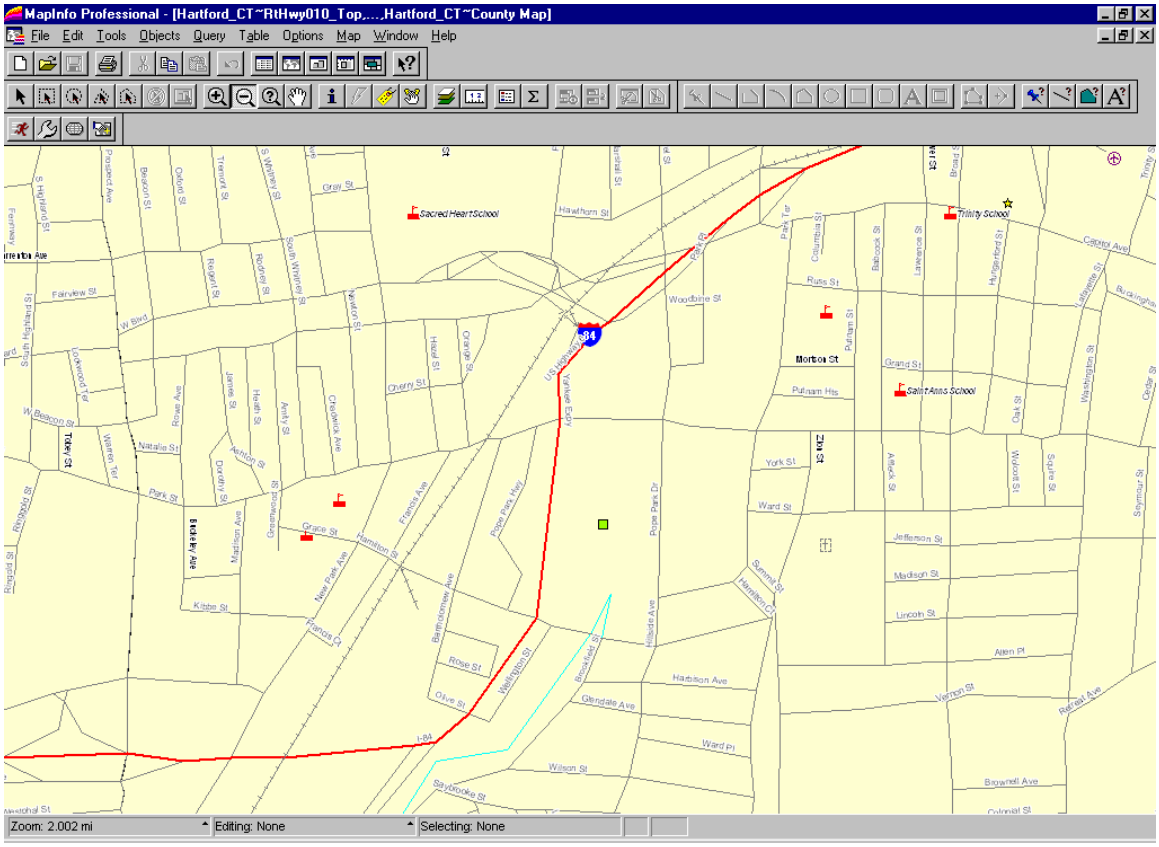
County-level Feature	Naming Convention	Example
Display Streets Table	[SS] + [CCCC] + D	WAKINGD.TAB
Highways Table	[SS] + [CCCC] + H	WAKINGH.TAB
City Boundaries Table	[SS] + [CCCC] + CB	WAKINGCB.TAB
Townships Table	[SS] + [CCCC] + MC	WAKINGMC.TAB
Area Landmarks Table	[SS] + [CCCC] + LM	WAKINGLM.TAB
Water boundaries Table	[SS] + [CCCC] + WB	WAKINGWB.TAB
Rivers Table	[SS] + [CCCC] + WR	WAKINGWR.TAB
Cultural Points Table	[SS] + [CCCC] + PC	WAKINGPC.TAB
Natural Points Table	[SS] + [CCCC] + PN	WAKINGPN.TAB

One of the more common uses of StreetWorks at the RSCs is to better locate facilities. The georeference table is the master table by which all ARGISS records are geocoded. This file was originally created by placing facilities in the centroid of the zip code boundary in which they reside. Although this provides a relatively accurate location of the facilities, they can be several hundred meters off. If an exact location is known for a facility, opening the StreetWorks street files on top of the georeference table allows the user to pinpoint the location of that faclility.

To update the locations of the georefernce table facilities:

1. Insert the ***StreetWorks CD*** with the appropriate state on it.

2. Open the ***Streets Table*** ([SS] + [CCCC] + D) for the county in which the facilities reside. If the county is not known, a county map can be opened from the ***T:\ENBOSS\ARGISS\BASEMAPS*** directory.
3. Open the master georeference table. ***T:\ENBOSS\ARGISS\DATASET\GEOREF.TAB***.
4. Zoom in to the region that contains the facility you wish to move, and autolabel the streets layer through layer control.


MapInfo Professional - [Hartford_CT~RtHwy010_Top,...,Hartford_CT~County Map]
File Edit Tools Objects Query Table Options Map Window Help
Zoom: 2.002 mi
Editing: None
Selecting: None

5. Make the **GEOREF** layer editable in ***Layer Control***.
6. Use the ***Select*** tool and click and drag the facility into the correct location.
7. Save the table.
8. **Contact the ARGISS HelpDesk at 1-800-557-4737 to send us a copy of your updated georeference table.**

The ***Create Application Data*** (CADP) process for *FPS* will have to be run in order for the change you just made to be reflected in the data.

The Smyrna Regional Office will need a copy of your georeference table for the following reasons:

- **So your changes will not get overwritten when we refresh your tables**
- **So OCAR's and HQ USARC's master georeference tables also get updated**

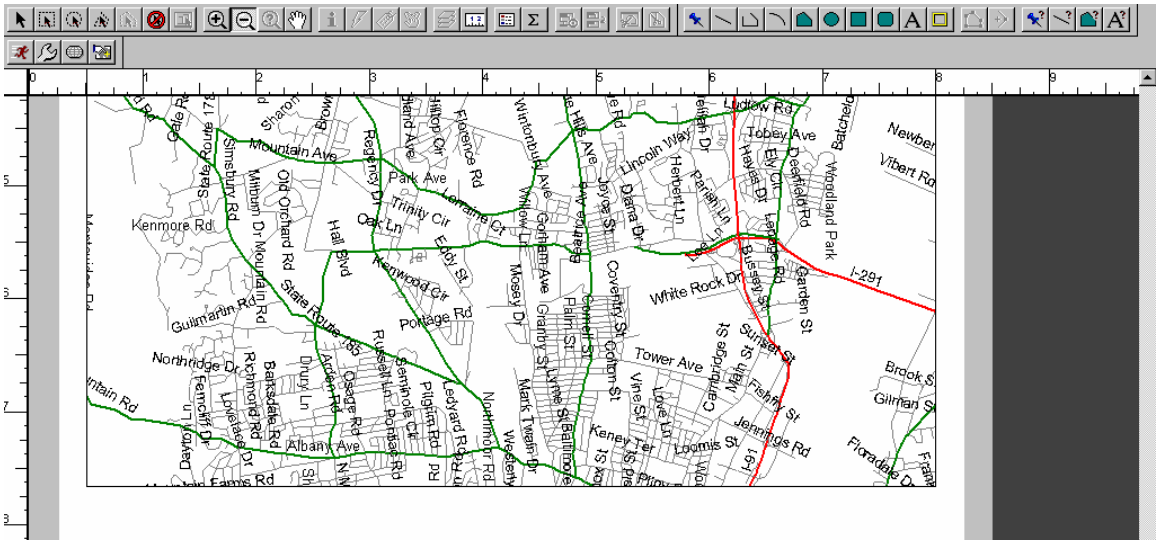
Another useful application of **StreetWorks** is creating strip maps for directions to your facility.

Creating a Strip Map

To create a strip map:

1. Open the **Streets** layer for a county.
2. Open the **georeference** table.
3. Zoom-in on two facilities in that county.
4. Using the ***Label*** tool, label the streets that you will include in the directions between the two facilities.
5. Add any additional symbols to the map using the ***Symbol*** tool. Remember you have to have a layer editable in order to add a symbol.
6. Open your map in a Layout window by selecting the ***Window*** menu option then ***Layout Window***.
7. Using the ***Text*** button type in the directions.

Your Layout window should look similar to the following example:



Creating New Base Maps

Often times when creating maps of particular RSCs or states, only selected states are necessary to display. A new base map containing only target states can be created from the existing basemaps in the ARGISS dataset.

To create a new base maps from an existing base map,

1. In ***MapInfo***, open the **T:\ENBOSS\ARGISS\BASEMAPS\STATESHR.TAB** base map.
2. Using the ***Select*** tool, select a state or hold the <SHIFT> key down to select multiple states.
3. Select ***File*** from the menu bar and then ***Save Copy As***.
4. Select ***Selection*** from the ***Save Table*** drop down box and click ***Save As***.
5. Give the new base map a name and click ***OK***.
6. Close the **STATESHR** table by selecting the ***File*** menu option and then ***Close Table***.
7. Open the new base map that contains the states you selected.

Geocoding Data

MapInfo allows users to create maps from existing database files. To display your data on a map, you must first assign X and Y coordinates to each record. *MapInfo* assigns these coordinates by geographic information in your database table to geographic information in another table (referred to as the search table) that already has X and Y coordinates associated with it (we will use the georeference table). This process is called geocoding.

For example, you may want to assign X and Y coordinates to a *Data Bridge* query that has a Fac_id field in the database. *MapInfo* would read the Fac_id and look for matching Fac_id's in the search table (e.g. georef.tab). This search table already has X and Y coordinates associated with each record.

When *MapInfo* matches the Fac_id's in your *Data Bridge* query to the Fac_id's in the search table (GEOREF.TAB), it assigns the corresponding X and Y coordinates to your record. The geocoded point becomes part of your database. You can view these points by displaying your table in a *Map* window.

There are multiple methods of geocoding data. These are:

Geocoding by Address - When you geocode your table with street addresses, *MapInfo* matches the addresses in your table to the addresses in a StreetInfo, or other street data file, and assigns X and Y coordinates to your record's address.

Geocoding by Boundary - When you geocode your table with boundaries, *MapInfo* matches the boundary name in your table with the boundary name in the search table. *MapInfo* assigns the boundary centroid X and Y coordinates to your data records. The centroid of a boundary is the approximate midpoint. Zip code boundaries can be used to geocode records that contain zip code fields.

MapInfo also allows the user to geocode data in two modes:

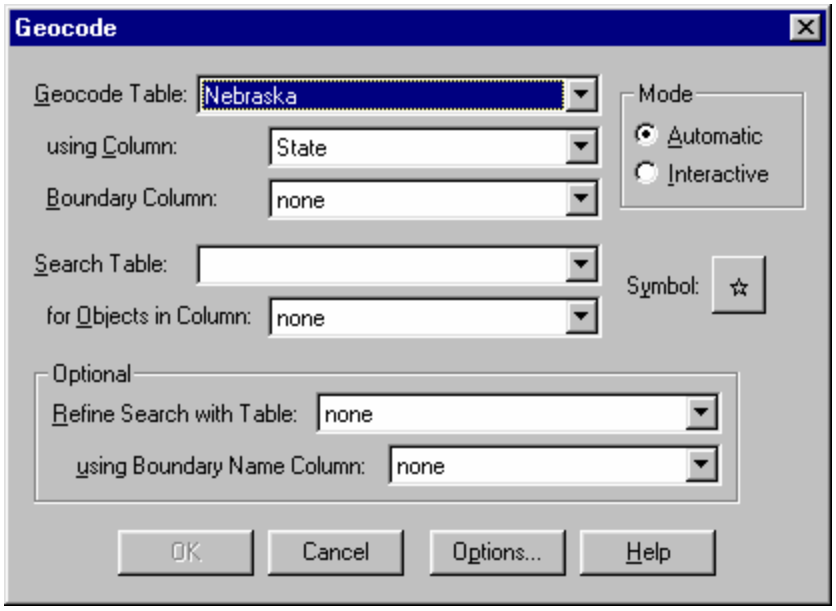
Automatically - Geocodes exact matches only and ignores all other records in the table

Interactively - Pauses when it cannot match a record and lets the user select from a list of close matches

Always geocode automatically first and then go back and geocode interactively to match the records *MapInfo* could not find a match for.

To geocode a database file:

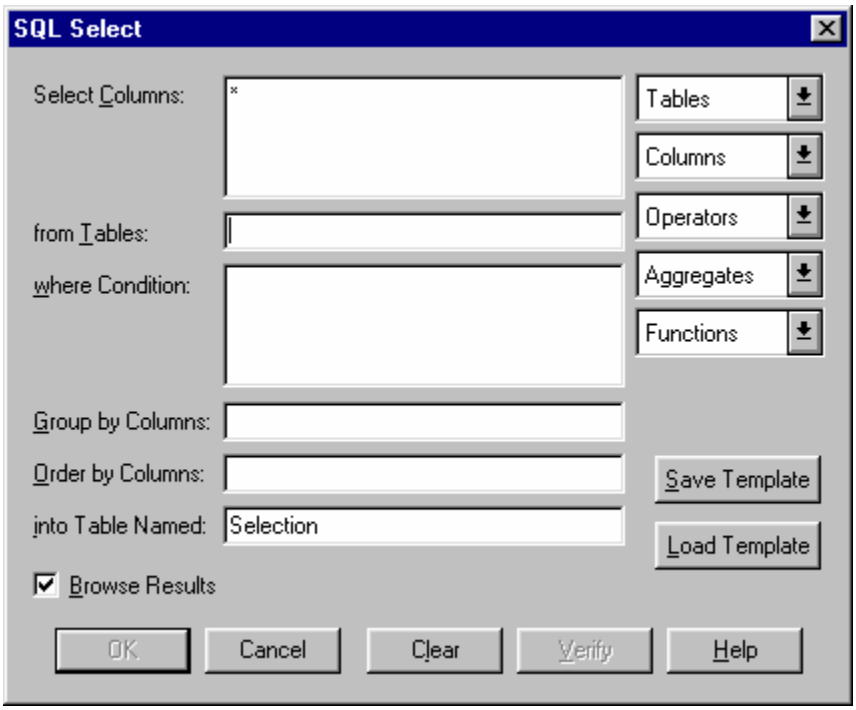
1. Open the table you wish to geocode by selecting ***File > Open Table***.
2. Open the table that will be used as the search table. If geocoding queries from the *Data Bridge* the search table to use is the **T:\ENBOSS\ARGISS\DATASET\GEOREF.TAB**.
3. Once the geocode and search table are open, select ***Table*** from the menu bar.
4. From the ***Table*** menu items, select ***Geocode***.
5. Select the table to geocode from the ***Geocode Table*** drop down box.
6. Select the column to use to geocode with (e.g. Fac_id) from the ***Using Column*** drop down box.
7. Select a search table from the ***Search Table*** drop down box (e.g. georef).
8. Select the column from the ***for Objects in Column*** to use as the field to search and assign records to the geocode table.
9. Click ***OK***. *MapInfo* will geocode as many records as it can and return a message window displaying the results.



Some of the records may not have been matched due to multiple possibilities. The ungeocoded records will have to be examined to determine why they were not geocoded. Repeat the geocoding steps but select the *Interactive* radio button from the *Mode* options in the *Geocode* window.

To find ungeocoded records:

1. Select ***Query > SQL Select***.
2. In the ***from Tables*** box enter the table you just geocoded.
3. In the ***where Condition*** enter ***not obj***.



The table you geocoded does not automatically display in the map window. You need to add the layer using *Layer Control*.

1. Click the ***Layer Control*** button from the *Main* tool bar.
2. Click the ***Add*** button under ***Layers***.
3. Select the layer that was just geocoded.
4. Click ***Add***.
5. Click ***OK***.

The objects are now displayed on the map and need to be labeled.

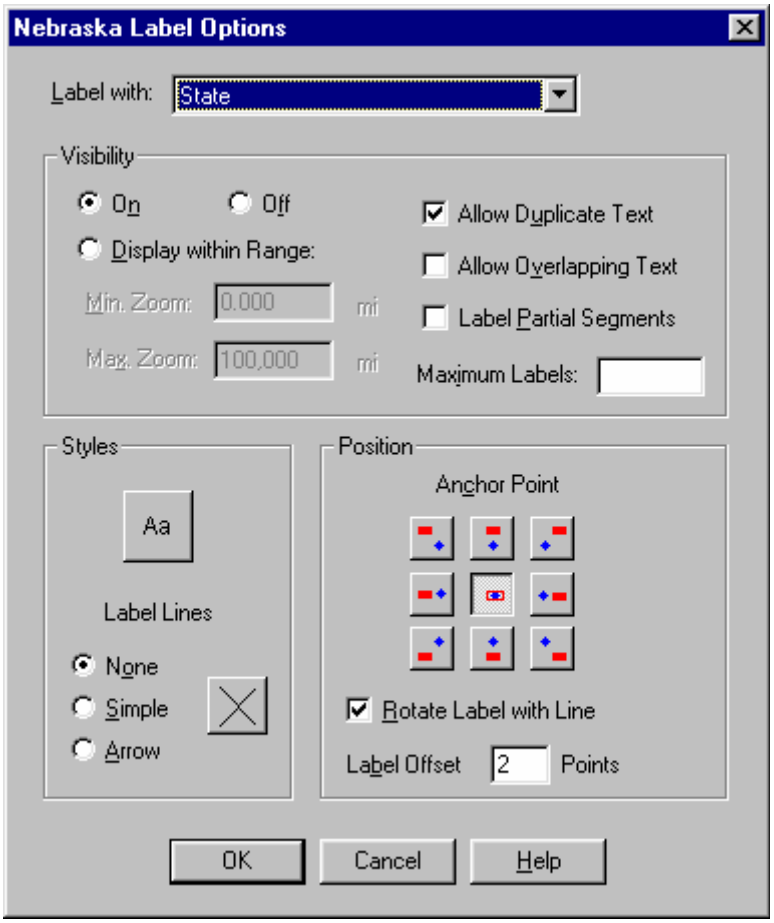
Labeling Your map

To label your map:

The autolabel check box in the *Layer Control* is, by default, not activated. To activate auto labels, simply check the box for the layer you want to label. The *Label* tool from the *Main* tool bar can be used to interactively label objects on the map.

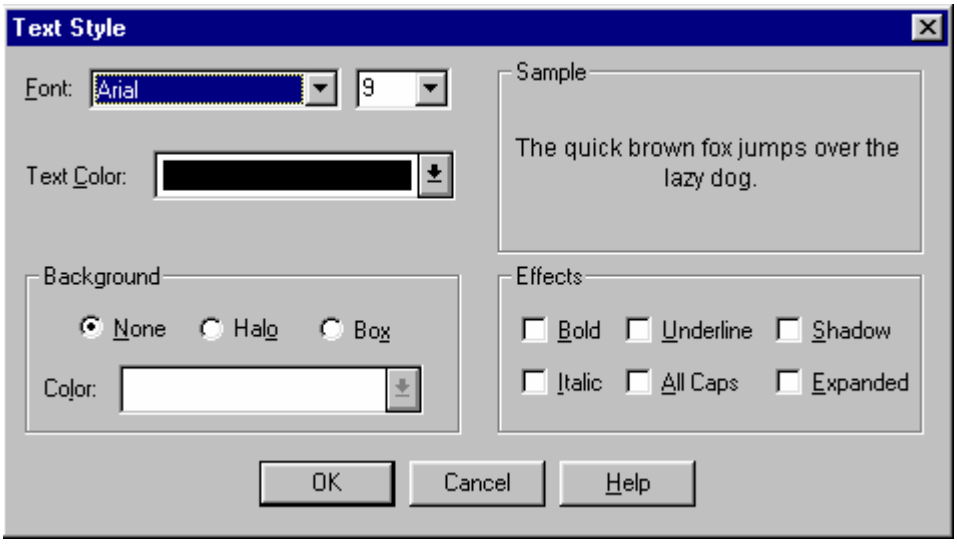
To change the default auto label options for the map:

1. From the ***Layer Control*** window select the ***Label*** button.



2. Select a field to label the layer with from the ***Label With*** drop down box. You can label the layer with any fields within its database.
3. Check the ***Allow Overlapping Text*** **or** ***Allow Duplicate Text*** if desired.
4. Under ***Styles*** click the button

to change the appearance of the label.



5. To change the position, or the anchor point of the label, click the desired anchor point from the ***Position*** options.
6. Click ***OK***.

Adding and Creating Custom Symbols

You can use your own custom bitmaps as symbols in *MapInfo*. Once they are saved to the correct location, they will populate in the Font list as Custom Symbols. **In order for your symbols to appear in the Font list, you have to save them as bitmap files to the T:\MAPINFO\CUSTSYMB directory**. The next time you launch *MapInfo*, your symbols will appear in the Font list for Custom Symbols. Keep in mind the following limitations when creating your own bitmap file:

- Bitmap should be under 64K if using 16 bit version of *MapInfo*
- Bitmap should be under 128K if using 32 bit version of *MapInfo*
- 256 colors are supported

The smaller bitmaps will look better at smaller font sizes because they do not need to be compressed. The larger bitmaps will look better at larger font sizes because they have more pixels and more detail.

Displaying Raster Images

A raster image is a computerized picture that contains rows and rows of tiny dots or pixels. A raster image cannot have any data attached it. On the other hand, a vector image contains X and Y coordinates. The maps that display in FPS are all vector images and have data attached directly to the image. The following is a list of raster images that *MapInfo* will open directly:

- BIL (SPOT satellite images)
- BMP (Windows Bitmap)
- GIF (Graphics Interchange Format)
- JPG (JPG)
- PCX (ZSoft Paintbrush)

- TGA (Targa)
- TIF (Tagged Image File Format)

External Graphic Data

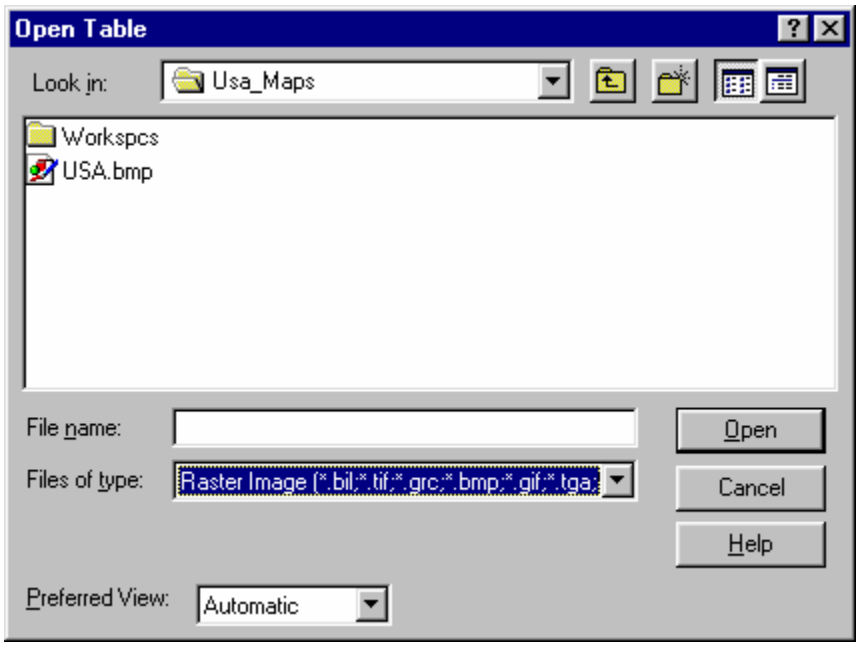
MapInfo can import the following formats:

- MIF (MapInfo Interchange Format)
- DXF (AutoCad)
- MBI (MapInfo Boundary Interchange)
- MMI (MapInfo Mapfile Interchange)
- IMG (MapInfo DOS Image)

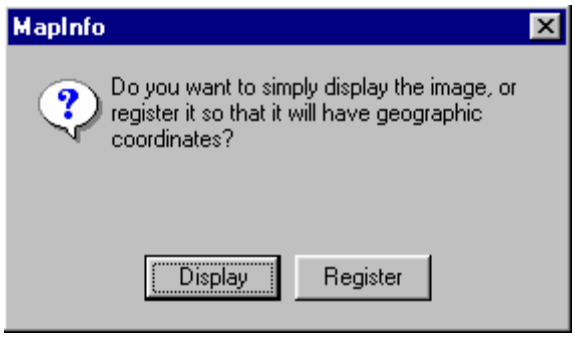
If you need to import a MicroStation file, convert the DGN file to a DXF file which can be imported into *MapInfo*. Remember when importing files into *MapInfo*, the images will need to be cleaned up after the import and some information will be lost during the translation.

To display a raster image:

5. Select the ***File*** menu and then ***Open Table***.
6. Select ***Raster Image*** from the ***List Files of Type*** drop down box.
7. Select the raster image you want to display and click ***OK***.



8. When asked if you want to simply display the image or, register it so it will have geographic coordinates, click ***Display***.


MapInfo
Do you want to simply display the image, or register it so that it will have geographic coordinates?
Display
Register

The image displays in a map window.

Advanced MapInfo Features

Practical Exercises

Scenario

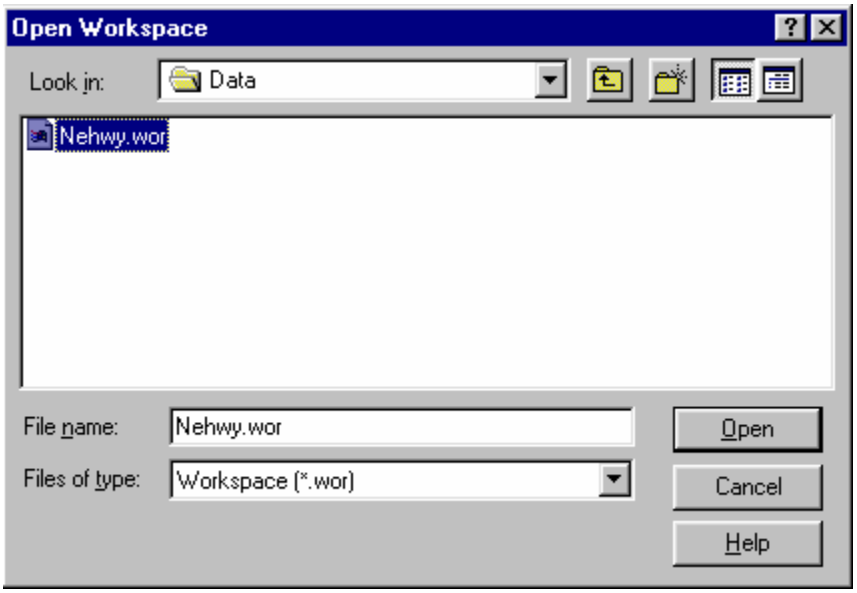
The Congressman and his colleagues have not been to NE003. They have requested a strip map complete with instructions from the airport in Omaha to NE003. The strip map will be created in *MapInfo* using pre-saved StreetWorks data. You also need to create a map of the the MCAR projects with only the states in the 89th RSC. You will have to run a query in the *Data Bridge* first and then create the map in *MapInfo*. Finally you will print the maps in a Layout window. These maps will be used in your final presentation to Congressman Snort and his colleagues.

The following practical exercise will walk you through creating a strip map, quering MCAR project information from EMAAR in the *Data Bridge*, creating a map of the 89th RSC MCAR projects.

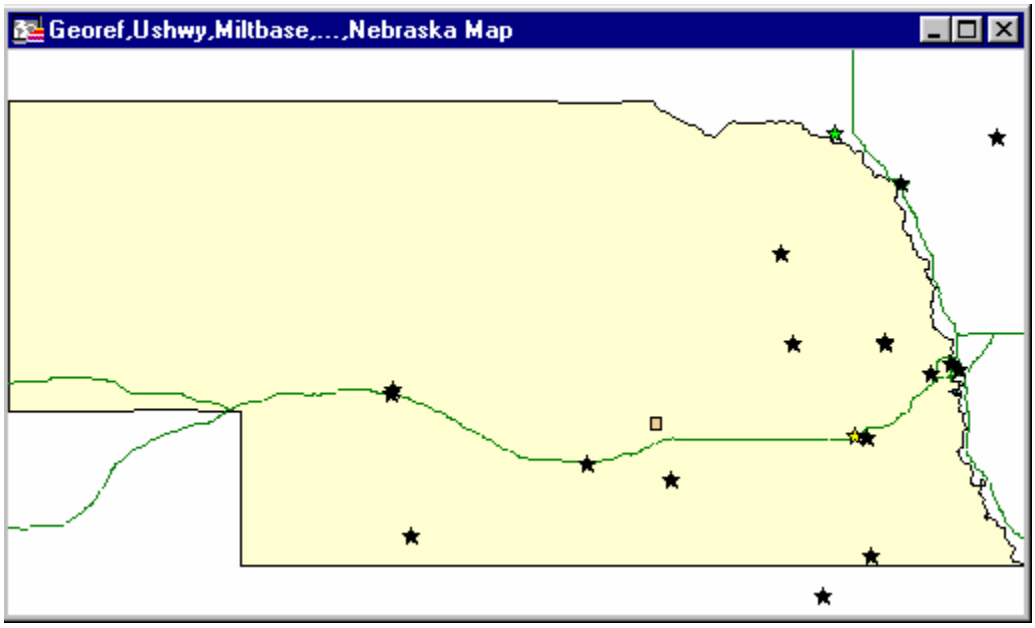
Create a Strip Map from the Omaha Airport to NE003

Since the Omaha airport is so close to the Iowa border, the strip will include Nebraska as well as Iowa streets.

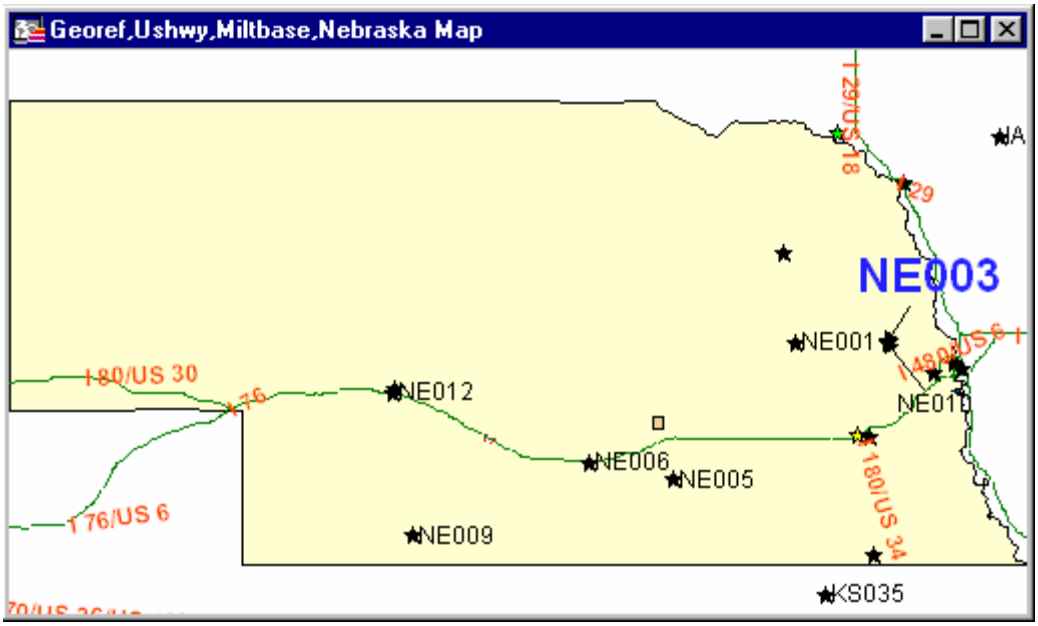
1. Double click on the ***MapInfo*** icon in the MapInfo program group.
2. Select the ***File*** menu then ***Open Workspace*** from the menu bar.
3. Select **T:\ENBOSS\ARGISS\DATA\NEHWY.WOR**.
4. Click ***Open*** or double click on the file.



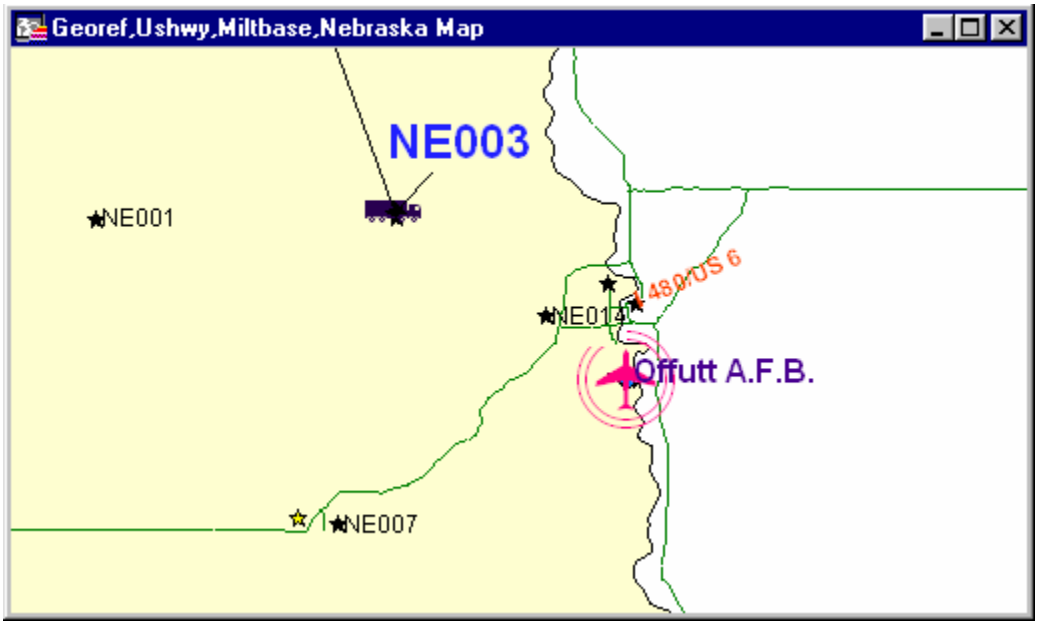
5. Select the ***File*** menu then ***Open*** from the menu bar.
6. Select **T:\ENBOSS\ARGISS\BASEMAPS\MILTBASE.TAB**.
7. Click ***Open*** or double click on the file.
8. Select the ***File*** menu then ***Open*** from the menu bar.
9. Select **C:\ENBOSS\ARGISS\DATASET\GEOREF.TAB**.
10. Click ***Open***. Your map should look like the map below.



11. Label NE003 some of the highways to orient yourself.

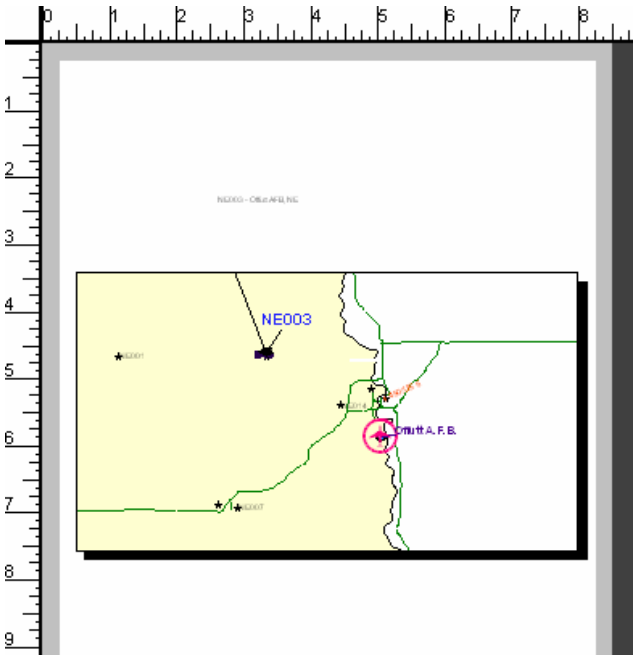


12. Make the ***Cosmetic Layer Editable*** in ***Layer Control*** and add a symbol to show where the airport is located.
13. Use the ***Symbol*** tool to add a symbol indicating the location of NE003. To change the default symbol, use the ***Symbol Style*** toolbar button.



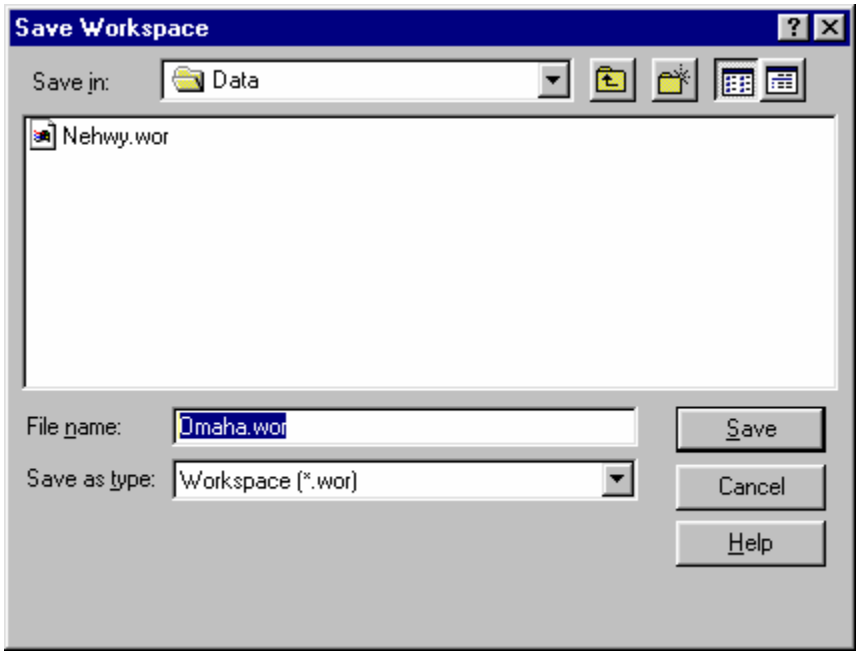
14. Select the ***Window*** menu option then ***New Layout Window***.
15. Select the ***One Frame for Window*** radio button if it is not already selected and click ***OK***.
16. Once your Layout window displays, change the orientation to ***Landscape***.
17. Using the ***Text*** tool type in a title to your window. You will need to increase the font size.
18. Select the map on the Layout window and select the ***Layout*** menu option then ***Create Drop Shadows***.
19. Click ***OK*** on the ***Create Drop Shadows*** window.
20. Add a **Scalebar** to your map. Remember you have to have the map window active.
21. Select the ***File*** menu then ***Run MapBasic Program***.
22. Select **SCALEBAR.MBX** and click ***OK***.
23. Run the **SCALEBAR** program by selecting the ***Tools*** menu option then ***ScaleBar*** and then ***Draw ScaleBar.***
24. Change the options you want to and click ***OK***.
25. Print your Layout window for review.

Your strip map should look something like the example on the next page.



Save your strip map as a workspace to your **C:\ENBOSS\ARGISS\DATA** directory.

1. Select the ***File*** menu option then ***Save Workspace***.
2. Give the workspace a name and save it to **C:\ENBOSS\ARGISS\DATA.**

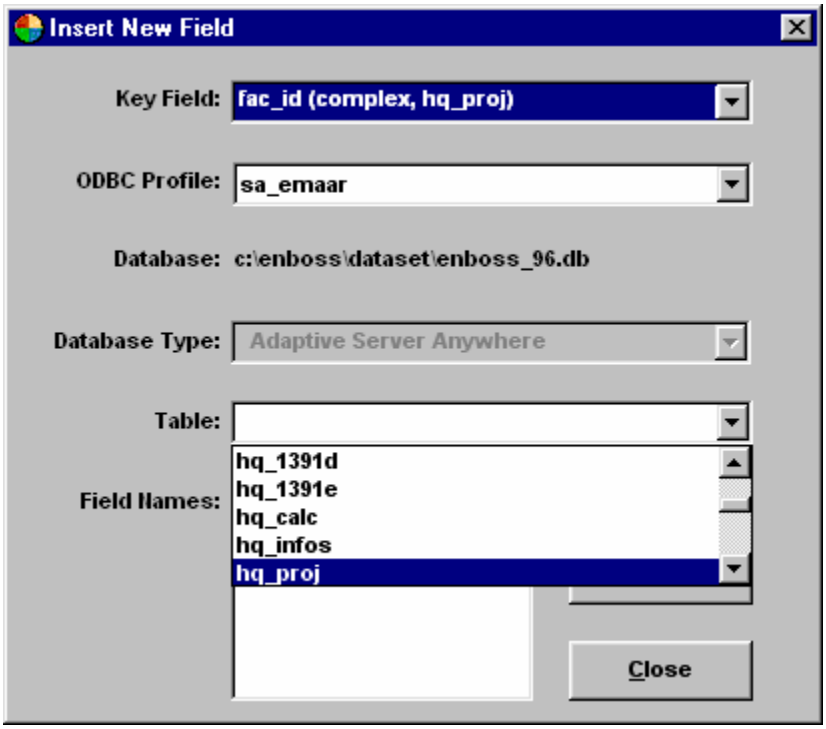


Write down the name of your workspace in the space provided below.

_____

Populate Your Local Data Bridge Table with MCAR Projects from EMAAR

1. Double click on the ***Data Bridge*** icon in the ARGISS program group.
2. Point to your Local System Tables by selecting the ***Administration*** menu option then ***Change Data Source >Local***.
3. Select ***Data Bridge Table*** from the ***Reference Table*** list box if it is not already selected and click ***New***.
4. Select ***Fac_id*** from the ***Key Field*** drop down box.
5. Select the ***sa_emaar*** profile from the ***ODBC Profile*** drop down box. Notice the ***Data Bridge*** automatically populates the ***Database*** and ***Database Type*** fields.
6. Select ***HQ_PROJ*** from the ***Table*** drop down box.
7. Select all of the fields from the list of ***Column Names***.
8. Click ***Insert***.
9. Click ***Close***.



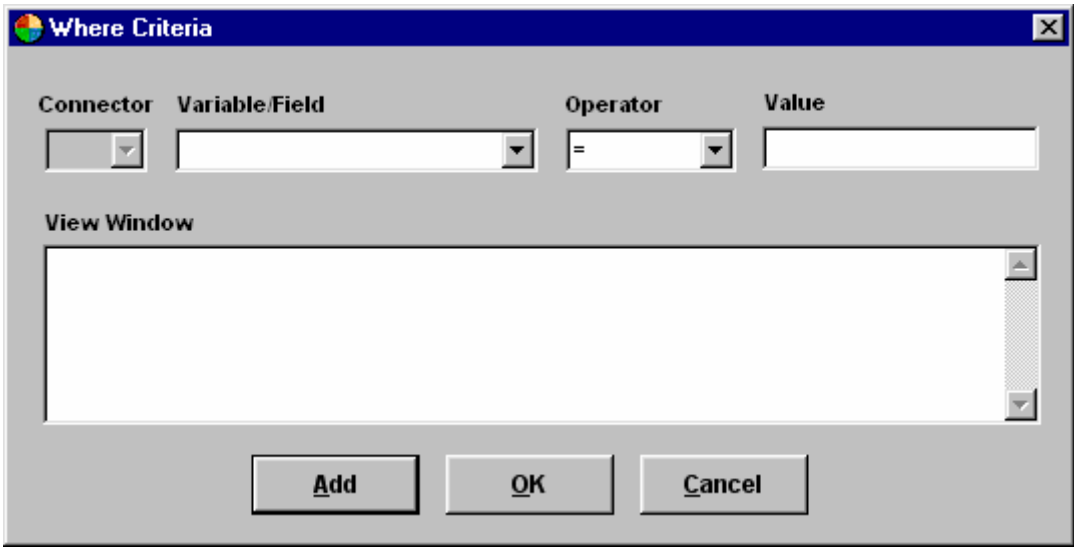
Close the ***Table Maintenance*** window.

Create the MCAR Query

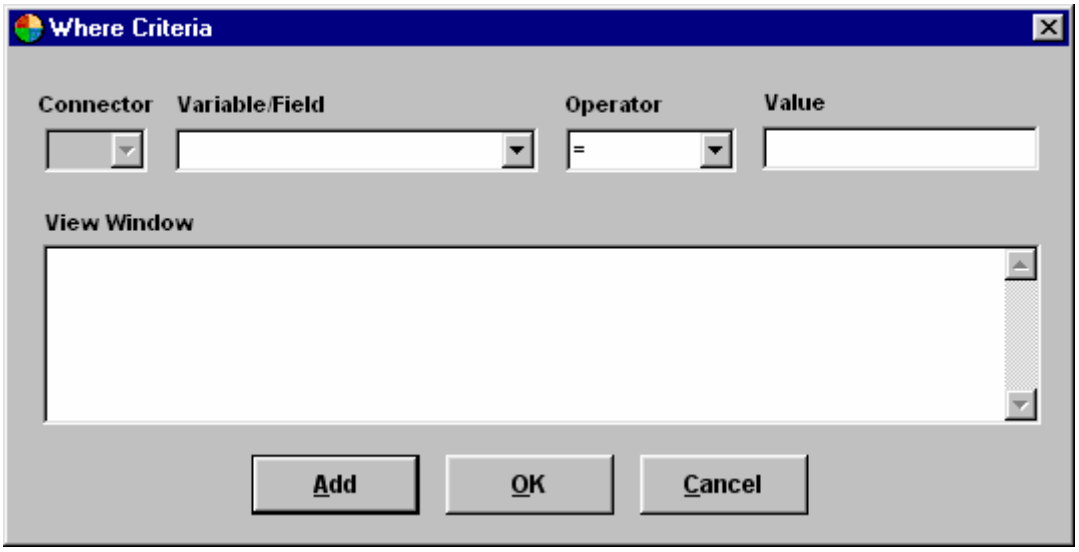
1. Select the ***Query*** menu and then ***New*** or press the ***New*** toolbar button.
2. Select ***Fac_id*** as the ***Key Field***.
3. Click ***Yes*** when asked if you want to set up the relationship between the tables.
4. Select the relationship and click ***OK***.
5. Select the following columns from the ***Columns*** list box: **cntgn_cost, fac_city, fac_state, fac_street, fac_title, fac_zip, proj_no, proj_title, proj_fy, proj_cost, proj_type, proj_loc**.
6. Click ***Add*** to add all of the selected columns to the ***Selected Columns*** window.
7. Using the order up and down buttons, position the fields in the order you want them.

Filter the MCAR Query for Iowa, Nebraska, Missouri and Kansas

1. Select the ***Where Clause*** button to filter only Iowa, Nebraska, Missouri, and Kansas MCAR projects.
2. Select ***fac_state*** from the ***Variable/Field*** drop down box.
3. Select or type the = sign in the ***Operator*** box. Notice the other types of operators in the drop down box.
4. Enter ***NE*** for the state of Nebraska in the ***Value*** box. Remember the ***Value*** box is case sensitive.
5. Click ***Add*** to add the where clause to the ***View Window***.



6. Select ***OR*** for the ***Connector*** drop down box.
7. Select ***fac_state*** from the ***Variable/Field*** drop down box.
8. Select the = sign from the ***Operator*** drop down box.
9. Type in ***IA*** in the ***Value*** box.
10. Click the ***Add*** button to add the filter to the ***View Window***.
11. Click ***OK***.



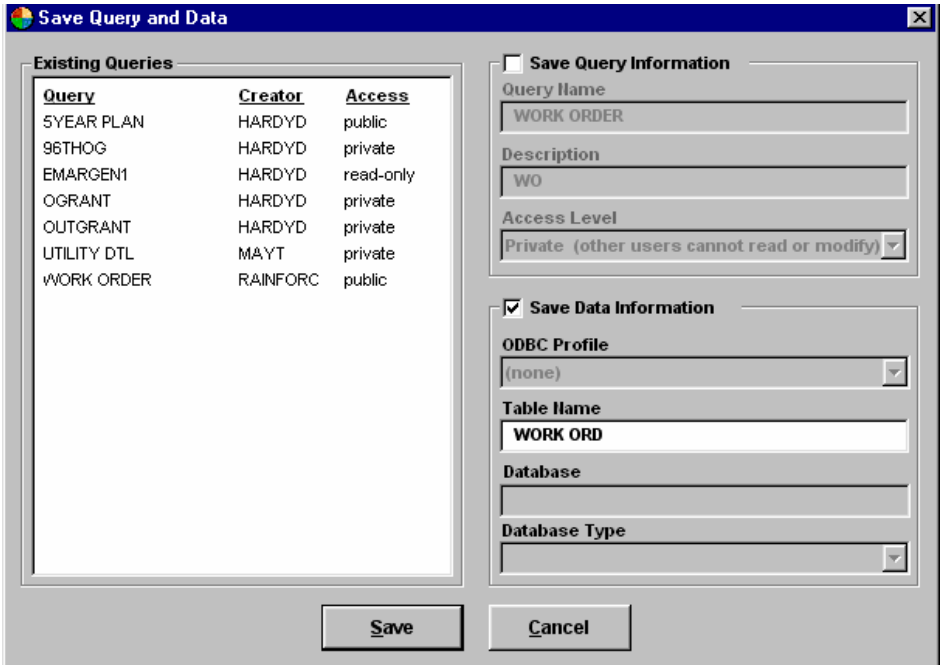
12. Repeat the steps above to add Missouri and Kansas to the filter.
13. Click ***OK*** on the ***Where Criteria*** window.

Run the MCAR Query

1. Click the ***Run*** toolbar button or select the ***Execute*** menu then ***Run***.

Save the Results of the MCAR Query as a DBF Table:

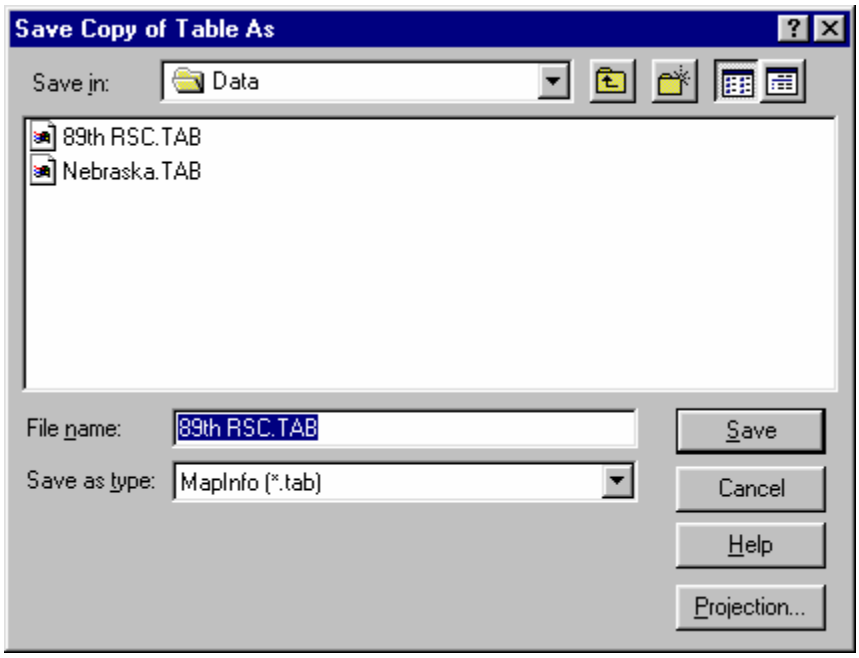
1. Click ***Save*** to save the results of the query.
2. Check the ***Save Query Information*** check box.
3. Enter a query name in the ***Name*** text box.
4. Enter a description in the ***Description*** text box.
5. Select ***Read-Only*** as the ***Access Level***.
6. Check the ***Save Data Information*** check box.
7. Since we are going to save the results of your query as a **DBF** table to **C:\ENBOSS\ARGISS\DATA**, you do not need to use a profile. Select ***(none)*** as the ODBC Profile.
8. Click ***Save***.



9. In the ***File Name*** text box enter in a name.
10. Select **C:\ENBOSS\ARGISS\DATA** as the directory.
11. Click ***OK*** on the ***Save Data Without Using An ODBC Profile window***.
12. Click ***OK*** on the ***Save Confirmation*** window.
13. Click ***Close*** on the ***View/Edit Result Data*** window.
14. Click the ***Close*** toolbar button or select the ***Query*** menu then ***Close***.
15. Exit the ***Data Bridge***.

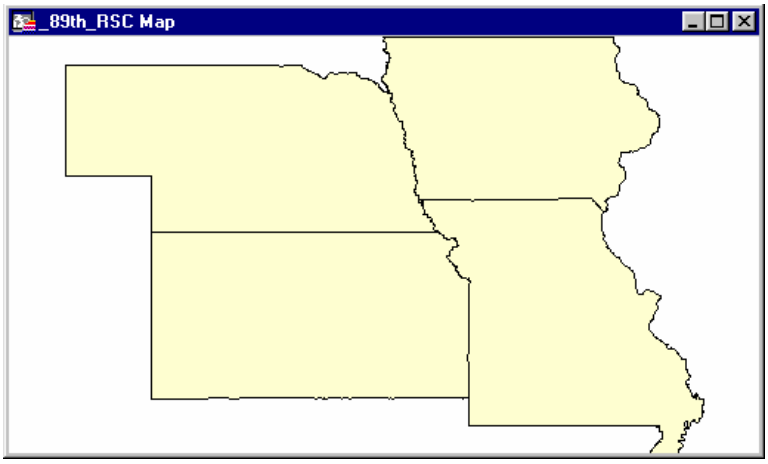
Create a New Base Map Containing Only the States in the 89th RSC

1. Double click on the ***MapInfo*** icon in the MapInfo program group.
2. Open the **T:\ENBOSS\ARGISS\BASEMAPS\STATESHR.TAB** base map.
3. Using the ***Select*** tool, select Nebraska and press the <SHIFT> key down. Select Iowa, Missouri, and Kansas.
4. Select ***File*** from the menu bar and then ***Save Copy As***.
5. Select ***Selection*** from the ***Save Table*** drop down box and click ***Save As***.
6. Give the new base map a name, select **C:\ENBOSS\ARGISS\DATA** as the directory, and click ***OK***.



7. Close the STATESHR table by selecting the ***File*** menu option and then ***Close Table***.
8. Open the new base map that contains the states in the 89th RSC.

The state or states you selected display.



Geocode the MCAR Project Table

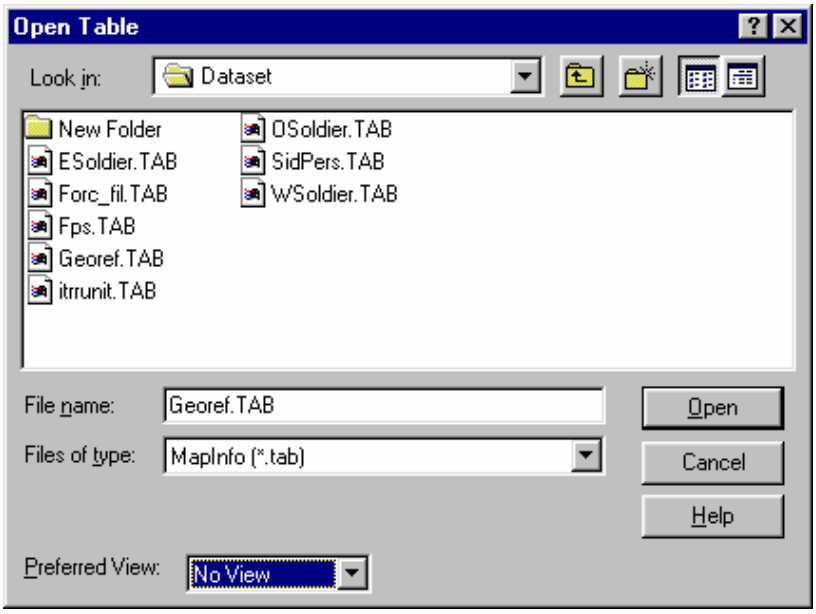
In order to geocode a table you must use another table that contains X and Y coordinates. The master georeference table is an easy table to use because it contains Fac_id. The geocoding process will put the MCAR data on a map for visual and spatial analysis.

To open the MCAR Project table you saved in the *Data Bridge*:

1. Select the ***File*** menu option and then ***Open Table***.
2. You should have saved the table to **C:\ENBOSS\ARGISS\DATA**.
3. Click ***OK*** on the ***Open Table*** window.
4. Click ***OK*** at the ***Dbase DBF Information*** window.

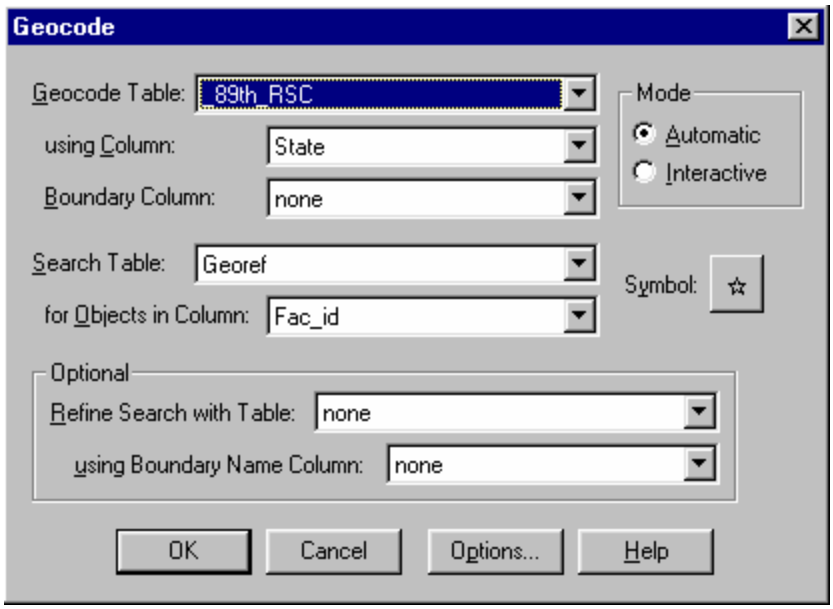
To open the georeference table:

1. Select the ***File*** menu option then ***Open Table***.
2. Select **C:\ENBOSS\ARGISS\DATASET\GEOREF.TAB**.
3. Select ***No View*** from the ***Preferred View*** drop down box since this table has already been geocoded and we do not want to add it to the map window.
4. Click ***OK*** on the ***Open Table*** window.



You are now ready to geocode the MCAR Project table.

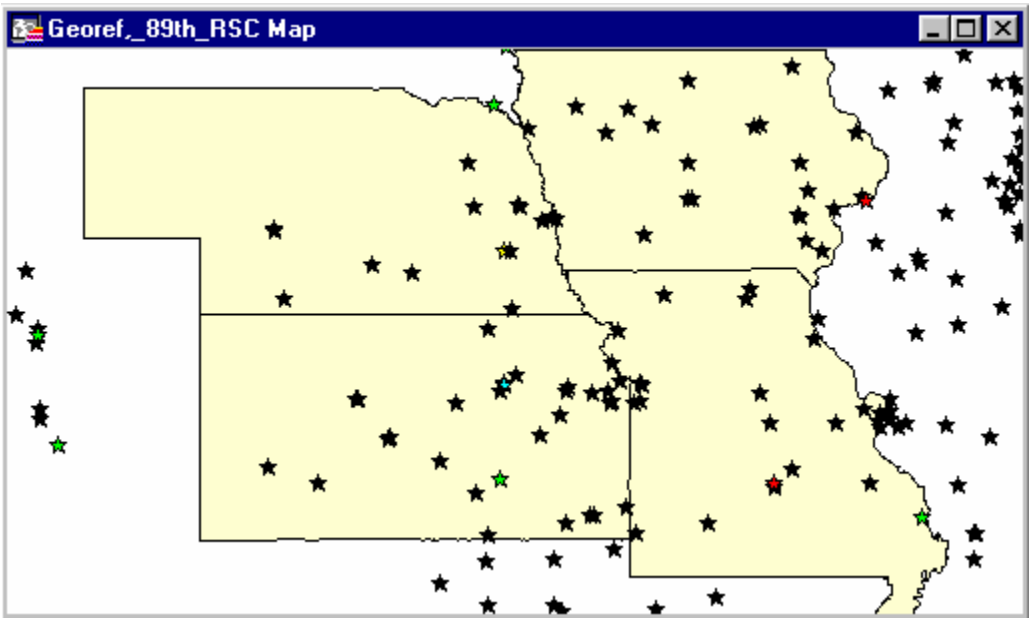
1. Select ***Table*** from the menu bar.
2. Select ***Geocode*** from the menu items.



3. Select your MCAR Project table as the table to geocode from the ***Geocode Table*** drop down box.
4. Select ***Fac_id*** as the column to use under the ***using Columns*** drop down box.
5. Select the ***GEOREF*** table as the table to search in the ***Search Table*** drop down box.
6. Select Fac_id as column to geocode with in the ***for Objects in Columns*** drop down box.
7. To change the symbol, color, and size click the ***Symbol*** button.
8. Click ***OK***.
9. Click ***OK*** on the ***MapInfo*** window displaying how many records were geocoded.

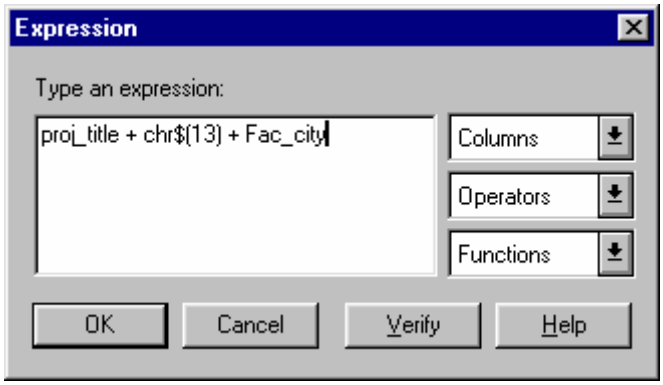
Add the Database to the Map Window

1. Click the ***Layer Control*** button. .
2. Under ***Layers*** click the ***Add*** button.
3. Select your MCAR Project table from the list of tables. Click ***OK***.
4. Click ***OK*** from the ***Layer Control*** window. The MCAR Project data will now display on the map.



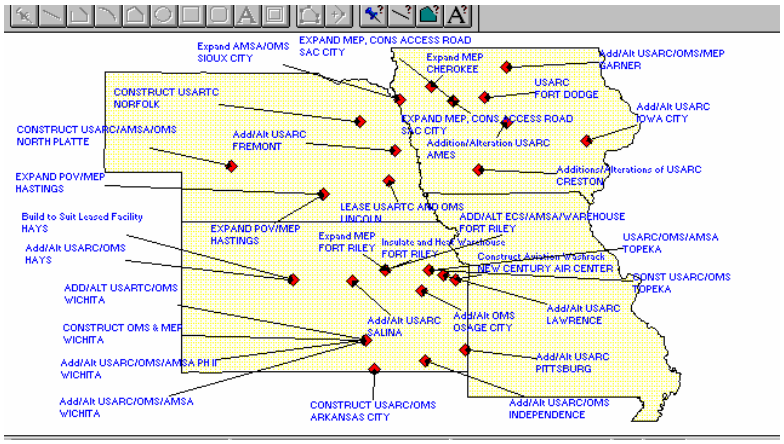
Label the MCAR Projects with Proj_Title and Proj_City

1. Click the ***Layer Control*** button.
2. Highlight your MCAR project table.
3. Click the ***Label*** button.
4. In the ***Label With*** box select ***Expression***. The following window will appear.



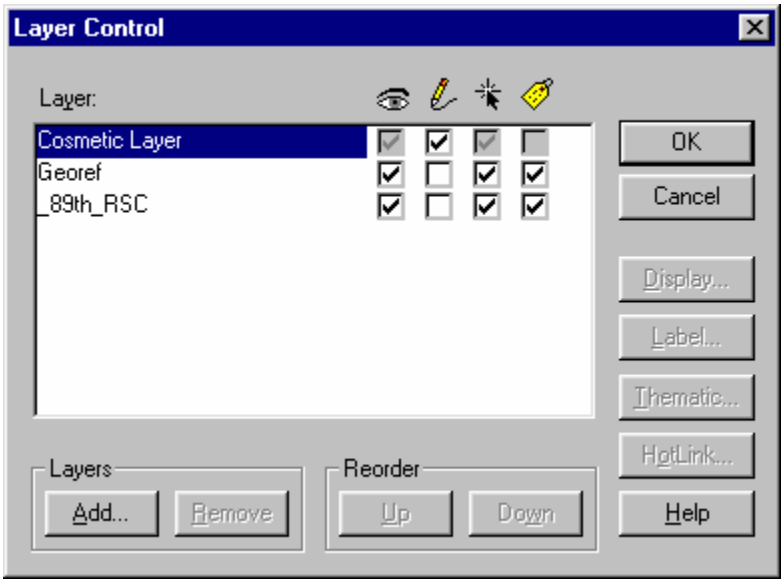
5. Type in the following expression ***Proj_title + chr$(13) + Fac_city***.
6. Click ***Verify***.
7. If the expression is valid click ***OK***. If not re-enter the expression.
8. Check the ***Allow Overlapping Text*** check box.
9. Change the font and any other options.
10. Click ***OK*** from the ***Label Options*** window.
11. Click ***OK*** from the ***Layer Control*** window.

The map is now labeled with **Proj_title** and the city that the facility is located in. Move the labels around so they are visible. Your map should look similar to the example below.



Add a Title to your MCAR map

1. Click the ***Layer Control*** button .
2. Make the ***Cosmetic Layer*** editable by checking the ***Editable*** check box.
3. Click ***OK***.



1. Select the ***Text Style*** button from the *Drawing* toolbar and choose a font size and color. Click ***OK***.
2. Click the ***Text*** button from the *Drawing* toolbar.
3. Position the pointer where you want to place the title and click the left mouse button.
4. Type a title.

Print your MCAR map

1. Select ***File > Print***.
2. Select your print options and then click ***OK***.

Save the Windows as a Workspace

1. Select ***File*** from the menu bar.
2. Select ***Save Workspace***.
3. Give the workspace a name.
4. Click ***OK***.

Conclusion

The Advanced *MapInfo* practical exercise gave you an advanced understanding of *MapInfo* functionality. Desktop GIS can be a valuable tool to engineers, planners, real estate specialists, and facility managers. You are encouraged to practice using *MapInfo* after the conclusion of this class.

The strip map with directions from the Omaha airport to NE003 and map of all the MCAR projects with only the states in the 89th RSC displaying will be used for the Congressman's presentation.

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